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# **CMI Phase Monitoring Well Installation Work Plan**

**Boeing Plant 2  
Seattle/Tukwila, Washington**

**Prepared For:**

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Attachment B	Data Gap Investigation Field Parameter Summary Tables
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## ABBREVIATIONS AND ACRONYMS

### Abbreviation/

### Acronym

### Definition

AOC	Administrative Order on Consent
bgs	Below ground surface
Boeing	The Boeing Company
cDCE	cis-1,2-Dichloroethene
CMS	Corrective Measures Study
cVOC	Chlorinated Volatile Organic Compound
DGI	Data gap investigation
DO	Dissolved oxygen
DOT	Department of Transportation
DSOA	Duwamish Sediment Other Area
Ecology	Washington State Department of Ecology
EMF	Electrical Manufacturing Facility
EPA	Environmental Protection Agency
EPI	Environmental Partners, Inc.
ERD	Enhanced Reductive Dechlorination
FMCL	Final Media Cleanup Level
HASP	Health and Safety Plan
IM	Interim Measure
NTU	Nephelometric Turbidity Unit
ORP	Oxidation reduction potential
RCRA	Resource Conservation and Recovery Act
RFI	RCRA Facility Investigation
SVE	Soil vapor extraction
TCE	Trichloroethene
TMCL	Target Media Cleanup Levels
WAC	Washington Administrative Code



## **1.0 INTRODUCTION**

This monitoring well installation work plan has been prepared on behalf of The Boeing Company (Boeing) to begin the transition from Corrective Measures Study (CMS) phase monitoring to Corrective Measure Implementation (CMI) phase monitoring activities at Boeing's Plant 2 in Seattle/Tukwila, Washington. This work plan was prepared and the planned well installation tasks will be performed under the Administrative Order on Consent (AOC), dated January 18, 1994, between Boeing and the Environmental Protection Agency (EPA) Region X. Well construction will also be performed under Washington State Department of Ecology (Ecology) well construction regulations found in the "Minimum Standards for Construction and Maintenance of Wells" under Washington Administrative Code (WAC) 173-160 (Ecology 1998). This work plan has been prepared in conjunction with work on the CMS Report, which will incorporate by reference this work plan.

### **1.1 Work Plan Organization**

This well installation work plan is organized as follows:

- Section 1.0 – Introduction
- Section 2.0 – Groundwater Conditions at Plant 2
- Section 3.0 – Proposed New Monitoring Wells
- Section 4.0 – References
- Attachment A – Well Installation and Development Health and Safety Plan
- Attachment B – Data Gap Investigation Field Parameter Summary Tables
- Attachment C – Shoreline Wells Time Series Graphs

### **1.2 Background**

During 2010 and continuing through 2013 Boeing decommissioned numerous monitoring wells, including wells that were part of the shoreline monitoring well network. The wells that were decommissioned were within the footprints of construction projects or at locations where they would be damaged by demolition and construction activities that began during the summer in 2010 and continued through 2013.

The well decommissioning work was performed under an interim measure work plan, which was approved by EPA on June 8, 2010. As part of the well decommissioning work Boeing decommissioned shoreline monitoring wells PL2-013A, PL2-607A, PL2-015A, PL2-015AR, PL2-015B, PL2-026C, PL2-030A, PL2-030C, PL2-036A, PL2-036AR, PL2-043B, PL2-044B, PL2-233A, PL2-420A, PL2-420C, PL2-425A, PL2-425C, PL2-443A, PL2-443C, PL2-JF01AR, PL2-JF01B, PL2-JF01C, and PL2-JF02A.

In addition, shoreline well PL2-JF03A, formerly located on the Jorgensen Forge property, was decommissioned in 2006 after it was hit by a forklift and was damaged beyond repair. The locations of shoreline monitoring wells that were decommissioned and those that remain are shown in Figure 1-1.

The locations, screened intervals, and constituent lists for the original shoreline monitoring well network were based on a large number of environmental investigations, including the Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI). Since then, many environmental investigations, including a comprehensive data gap investigation (DGI), and ongoing shoreline well monitoring, have been performed at Plant 2. The soil and groundwater data obtained through these investigations have enhanced understanding of the locations, concentrations, and aerial extent and depth of impacted groundwater at Plant 2. These historical data, and more recent data when appropriate, were used to select locations, screened intervals, and constituent lists for the replacement shoreline monitoring well network proposed in this work plan. Under this work plan, Boeing also proposes installation of a 3-level cluster of monitoring wells near the eastern property boundary to complete the proposed upgradient monitoring well network. Following installation and development, monitoring of the new shoreline monitoring wells would be incorporated into the ongoing shoreline monitoring program and schedule.

### **1.3 Site Hydrogeology**

The conceptual hydrogeologic model of the Plant 2 area within the Duwamish River Valley consists of an alluvial basin between bounding uplands to the east and west. The Pleistocene Age alluvial deposits between the uplands are the result of glacial and fluvial processes resulting from the most recent glacial retreat and deposition within the Duwamish River floodplain. This depositional environment has resulted in a thick sequence of relatively high-permeability soils. These soils contain an unconfined aquifer in the area of Plant 2 that extends from approximately 10 feet below ground surface (bgs) up to approximately 100 feet bgs at some locations.

The aquifer is hydraulically connected to the Duwamish Waterway. The groundwater flow direction is generally west towards the Duwamish Waterway, with groundwater from Plant 2 flowing directly to the Duwamish Waterway without crossing other properties, except for some possible migration across the southern property line onto the neighboring Jorgensen Facility. The Duwamish Waterway is, therefore, a discharge zone for groundwater from the surrounding uplands.

For investigation purposes, the uppermost unconfined aquifer underlying Plant 2 was divided into three levels designated the A- (shallow), which extends from the top of the water table to 30 feet bgs, B- (intermediate), which extends from 30 feet to 60 feet bgs, and the C- (deeper) level, which extends from 60 feet bgs to the underlying aquitard. Limited groundwater mixing occurs between the shallow and deeper portions of the aquifer. Each of the three levels is influenced to a different degree by tidal fluctuations in the Duwamish Waterway due to differences in hydraulic conductivities. Additionally, deeper portions of the aquifer appear to be influenced by the saline water that extends below the Duwamish Waterway.

More detailed descriptions of the hydrogeologic conceptual model for Plant 2 and summaries of previous hydrogeologic investigations that were performed at Plant 2 are presented in the *RCRA Facility Investigation Groundwater Investigation* (Weston 1996) and in the *Uplands Corrective Measures Study, Volume I: Conceptual Hydrogeologic Model* (EPI 2014).

#### **1.4 Purpose of the Well Installation Work Plan**

This well installation work plan provides the following elements:

- Proposed well locations, depths, screened intervals, and constituent lists for fifteen replacement shoreline monitoring wells and for three new upgradient monitoring wells;
- Data summaries of groundwater analyses performed during the DGI and modified with more recent analytical data where warranted;
- Technical justification for discontinuing sampling at four current shoreline monitoring wells;
- The proposed sampling schedule and constituent list for the shoreline monitoring well network, including the newly installed wells; and
- Well drilling, installation, and development methods and procedures.

This work plan also contains a project-specific Health and Safety Plan (HASP) for well installation and development, which is presented in Attachment A.

## **2.0 GROUNDWATER CONDITIONS AT PLANT 2**

Soil and groundwater at Plant 2 have been extensively investigated under the AOC between Boeing and EPA Region X. A complete listing and summary of the numerous environmental investigations that have been performed at Plant 2 is not warranted for this monitoring well installation work plan. Rather, data that are applicable for evaluating the effective coverage of the proposed shoreline monitoring well network have been selected to be relatively recent and of sufficient spatial coverage to identify and delineate areas of impacted groundwater throughout Plant 2. The dataset that best fits these criteria is the DGI dataset.

The following sections contain summaries of evaluations of the DGI dataset, modified with more recent data (as described in Section 2.1), which were performed to select appropriate locations, screened intervals, and analytical constituent lists for proposed shoreline monitoring wells. In addition to the analytical constituent lists resulting from the DGI data evaluations, two constituents, free cyanide and PCBs, are proposed for sampling at select shoreline wells for a specific number of monitoring events. Data evaluations will be performed at the conclusion of the specified monitoring schedule to determine if continued monitoring for free cyanide or PCBs is warranted. The rationale for temporarily analyzing free cyanide or PCBs at specific wells is presented in the following bullets:

- Free cyanide will be analyzed in samples from the B-Level wells at proposed shoreline well Locations C and G as noted in Table 3-1. During the DGI, weak acid dissociable (WAD) cyanide was the form of cyanide analyzed. WAD cyanide was detected in samples from the B-Level of the aquifer at concentrations greater than the proposed Final Media Cleanup Level (FMCL) for free cyanide near Locations C and G. The groundwater proposed FMCL for cyanide is based on free cyanide, which was determined to be the appropriate form of cyanide to analyze. Because free cyanide is a subset of WAD cyanide, it is likely that sampling for free cyanide for two shoreline sampling events will yield lower concentrations that will then be compared with the proposed FMCL for free cyanide to determine if continued monitoring for free cyanide is warranted.
- PCBs will be analyzed in samples from A-Level monitoring wells that are downgradient of OA-11 and in samples from wells that are downgradient of tunnels backfilled with crushed concrete containing trace concentrations of PCBs as noted in Table 3-1. Because PCBs are relatively immobile in groundwater, due to their high K<sub>d</sub> values, PCB analysis will only be performed annually for four years in samples from shoreline wells that are downgradient of OA-11 and the concrete backfilled tunnels. Data from the four annual PCB monitoring events will be evaluated to determine if continued monitoring for PCBs is warranted.

### **2.1 Data Gap Investigation Dataset Modifications**

This section presents summary evaluations of the CMS DGI groundwater data, which is the most recent comprehensive set of environmental investigations performed at Plant 2. The DGI dataset was updated at specific areas and for specific wells where more recent datasets were substituted. The locations where more recent data were substituted for DGI data are generally where interim measure (IM)

remedial actions were performed that significantly changed groundwater conditions after the DGI was completed. The specific instances in which DGI data were replaced with more recent post-IM data are listed in the following bullets.

- Chlorinated volatile organic compound (cVOC) data from the final Other Area 12 (OA-12) IM sampling event, which was performed in April 2011 (EPI, 2011a), were used at wells OA12-01A, OA12-01B, OA12-02A, OA12-03A, OA12-03B, OA12-04A, OA12-04B, PL2-315A, PL2-315B, PL2-329A, PL2-329B, PL2-330A, PL2-330B, PL2-331A, and PL2-331B.
- cVOC data from the final 2-66 Sheetpile Enhanced Reductive Dechlorination (ERD) IM sampling event, which was performed in April 2011 (EPI, 2011b), were used at wells PL2-041AA, PL2-008B, PL2-008C, PL2-010A, PL2-017A, PL2-021A, PL2-021B, PL2-021C, PL2-031A, PL2-032A, PL2-035A, PP-1B-I, PP-2B-I, PP-2B-O, PP-3A-I, PP-3B-I, PP-4B-I, PP-4B-O, and PP-5B-I.
- cVOC data from the August 2012 shoreline monitoring event (EPI, 2012) were used for wells PL2-043B and PL2-044B, which was the last time these wells were sampled prior to decommissioning.
- Copper data from the August 2012 shoreline monitoring event (EPI, 2012) were used for wells PL2-015A, PL2-043B, and PL2-036A, which was the last time these wells were sampled prior to decommissioning.
- Zinc data from the August 2012 shoreline monitoring event (EPI, 2012) were used for well PL2-043B, which was the last time this well was sampled prior to decommissioning.
- Trichloroethene (TCE) and vinyl chloride data from the January 2013 shoreline monitoring event (EPI, 2013) were used at wells PL2-JF01A, PL2-JF01B, and PL2-JF01C on the Jorgensen Forge property downgradient of the 2-66 sheetpile.

In addition to the OA-12 IM, the 2-66 sheetpile IM, and the 2-10 north and south sheetpile IMs, other significant remedial actions for soil and groundwater have been performed at Plant 2. However, monitoring wells that could have been used to quantify the results achieved by the remediation efforts were decommissioned as required for demolition and construction work at Plant 2. The significant remedial actions that were performed in 2012 and 2013 for which performance groundwater monitoring data do not exist include:

- Vadose zone soil excavation followed by placement of the groundwater remediation substrate 3DMe in the 2-31 Area.
- Removal of all vadose zone soil inside of the 2-66 sheetpile followed by placement of the remediation substrate 3DMe prior to backfilling with clean soil.

- Removal of contaminated fill material followed by construction of habitat in the 2-40s Area and in the Southwest Bank as part of the Duwamish Sediment Other Area (DSOA) work.

These remedial actions have likely improved groundwater quality in the areas in which they were performed by removing source material, and in the cases of the 2-31 Area and 2-66 sheetpile excavations, by enhancing reducing geochemical conditions that favor reductive dechlorination of residual cVOCs that might have remained following vadose zone source removal.

## **2.2 Chlorinated VOC Exceedences in Groundwater**

Nineteen areas of groundwater with cVOCs at concentrations greater than Target Media Cleanup Levels (TMCLs) for TCE or proposed FMCLs, for other cVOCs are shown and identified on Figures 2-1 and 2-2 for the South and North portions of Plant 2, respectively. Figures 2-1 and 2-2 indicate that, with the exception of the Electrical Manufacturing Facility (EMF) Plume, identified as cVOC-7, most of the cVOC exceedences affect groundwater in the A-Level of the aquifer.

Figures 2-1 and 2-2 also contain the proposed locations of new shoreline monitoring wells, which are temporarily identified as Locations A through I on the figures. These temporary location identifiers will be replaced with permanent well identifiers (which will follow the well naming format for Plant 2) during well installation.

There are six general areas of cVOC exceedences in groundwater identified on Figures 2-1 and 2-2 that require ongoing groundwater monitoring using the proposed shoreline monitoring well network. Beginning at the southern property boundary and moving north, the six general areas of cVOC impacts to groundwater are described in the following sections.

Conclusions based on the evaluation of the 19 cVOC exceedence areas are grouped into three general outcomes and summarized below:

- cVOC exceedence area will be monitored using one or more of the proposed or existing downgradient shoreline monitoring wells. This conclusion further assumes that the well(s) will be sampled following the shoreline monitoring schedule until FMCLs are met and the data will be evaluated to determine if continued monitoring is warranted. This conclusion applies to cVOC-1 through cVOC-7 and cVOC-9 through cVOC-11;
- cVOC exceedence area will be monitored by one or more proposed or existing downgradient shoreline monitoring wells following the shoreline monitoring schedule until the ongoing 2-10 Sheetpile IMs are completed, at which time data from those wells will be evaluated to determine if further monitoring is warranted. This conclusions applies to cVOC-15, cVOC-18, and cVOC-19; and
- Further monitoring is not warranted. This conclusion applies to cVOC-8, cVOC-12 through cVOC-14, cVOC-16, and cVOC-17.

One of these conclusions is noted for each of the identified cVOC exceedence areas that are presented in the following sections.

### **2.2.1 Southern Property Boundary**

Groundwater along the property boundary with Jorgensen Forge contains TCE and vinyl chloride in groundwater at concentrations greater than TMCLs or proposed FMCLs. These areas are represented by areas designated cVOC-1 and cVOC-2, which are described in the following bullets and summarized in Table 2-1.

- cVOC-1 is an A-Level area of exceedences that is primarily groundwater impacted by vinyl chloride with a maximum vinyl chloride concentration of 31 µg/L in the DGI sample from probe DP-SY-05. Other vinyl chloride concentrations in cVOC-1 are generally single-digit or low double-digit. cVOC-1 also contains three separate TCE plumes with a maximum TCE concentration of 110 µg/L in the DGI sample from PL2-115A and single digit µg/L concentrations at other locations. The proposed property boundary monitoring well network will monitor the cVOC exceedences represented by cVOC-1, which is not included within the scope of this work plan. Proposed shoreline wells at Locations A and B will also serve as downgradient monitoring locations for cVOC-1 as shown on Figure 2-1. These data will be evaluated in the CMI process to determine if cVOC analyses should be discontinued.
- cVOC-2 is a small B-Level area of exceedences based on vinyl chloride detections, all in samples from three of the newly installed DGI wells. The maximum vinyl chloride concentration in cVOC-2 is 12 µg/L in the sample from PL2-601B. The cVOC exceedences represented by cVOC-2 will be monitored by the proposed property boundary monitoring well network; however, proposed shoreline wells at Locations A and B will also serve as downgradient monitoring locations for cVOC-2 as shown on Figure 2-1. These data will be evaluated in the CMI process to determine if cVOC analyses should be discontinued.

A more detailed presentation of the groundwater data associated with cVOC-1 and cVOC-2 is presented in the *Uplands Corrective Measures Study Volume IIIb: South Yard Area Data Gap Investigation Report (EPI and Golder, 2007a)*.

### **2.2.2 2-66 Sheetpile and Surrounding Area**

Groundwater in the 2-66 sheetpile and surrounding area contains TCE, cis-1,2-dichloroethene (cDCE), and vinyl chloride in groundwater at concentrations greater than TMCLs or proposed FMCLs represented by areas designated cVOC-3 through cVOC-6, which are described in the following bullets and summarized in Table 2-1.

- cVOC-3 is an area of A-Level exceedences for TCE with a maximum concentration of 29 µg/L in the sample from probe 2-60-DP-06, which is greater than the TCE TMCL of 1.4 µg/L. The downgradient edge of cVOC-3 is truncated by the ERD IM performed at OA-12.

Groundwater downgradient of cVOC-3 will be monitored by proposed shoreline wells at Locations C through E as shown on Figure 2-1. These data will be evaluated in the CMI process to determine if cVOC analyses should be discontinued.

- cVOC-4 is an area of B-level exceedences for vinyl chloride that represents vinyl chloride concentrations remaining from the OA-12 RCRA unit, with a maximum concentration of 15.9 µg/L in the sample from probe 2-60-DP-11, which is greater than the proposed FMCL of 2.4 µg/L. Groundwater downgradient of cVOC-4 will be monitored by proposed shoreline wells at Location C as shown on Figure 2-1. These data will be evaluated in the CMI process to determine if cVOC analyses should be discontinued.
- cVOC-5 is an area of A-Level exceedences for TCE, cDCE, and vinyl chloride. The maximum TCE concentration is 1,100 µg/L in the sample from probe 2-66-DP-11 in the Southwest Bank, which has been removed. The maximum cDCE concentration is 870 µg/L also in the sample from probe 2-66-DP-11. The maximum vinyl chloride concentration is 900 µg/L in the sample from PL2-035A, which is inside of the 2-66 sheetpile. Groundwater associated with cVOC-5 will be monitored by proposed shoreline wells at Locations A through E as shown on Figure 2-1. These data will be evaluated in the CMI process to determine if cVOC analyses should be discontinued.
- cVOC-6 is an area of B-Level exceedences for vinyl chloride in samples from two wells, PL2-008B and PL2-009B, with concentrations of 2.5 µg/L and 4.7 µg/L, respectively. Proposed Location B will monitor groundwater associated with cVOC-6 as shown on Figure 2-1. These data will be evaluated in the CMI process to determine if cVOC analyses should be discontinued.

More detailed presentations of the groundwater data associated with cVOC-3 through cVOC-6 are presented in the *Uplands Corrective Measures Study Volume IVb: 2-60s Area Data Gap Investigation Report. (EPI and Golder, 2007b)* and *Uplands Corrective Measures Study Volume Vb: 2-66 Area Data Gap Investigation Report (EPI and Golder, 2007c)*.

### **2.2.3 EMF Plume Area**

The EMF Plume, identified as cVOC-7 on Figure 2-1, begins off-site to the east of Plant 2 on the King County International Airport. The EMF Plume is being remediated under a separate regulatory program but in coordination with the AOC at Plant 2. The EMF Plume has undergone significant reductions in cVOC concentrations and decreases in aerial extent since remedial actions were initiated for the EMF Plume at Plant 2, as indicated by the approximate EMF Plume boundaries from 2001–2002 shown on Figure 2-1. Further reductions in both cVOC concentrations and aerial extent that have been reported to EPA under the EMF monitoring program are not repeated here. The EMF Plume presented on Figure 2-1 depicts the approximate EMF Plume extent following its initial investigation in 2001 and based on more recent data. The more current information available from EMF data investigations does not affect the placement of Plant 2 shoreline wells in this area.



Within Plant 2 the EMF Plume, represented by cVOC-7, formerly extended from the eastern (upgradient) property boundary to the Duwamish Waterway, as shown by its 2001 boundaries on Figure 2-1. Additional small areas of cVOCs at concentrations greater than TMCLs or proposed FMCLs within the historical EMF Plume footprint are identified as cVOC-8 and cVOC-9. Groundwater conditions in cVOC-7, cVOC-8, and cVOC-9 are described in the following bullets and summarized in Table 2-1.

- cVOC-7 is an area of exceedences that represents the EMF Plume and is characterized by vinyl chloride, and to a lesser extent cDCE, that is stratified and generally limited to groundwater in the B-Level of the aquifer. The greatest vinyl chloride concentration among DGI data is 3,800 µg/L in a sample from PL2-435B. cVOC-7 contains a single cDCE exceedence with a concentration of 400 µg/L in the 41 ft. bgs sample from probe 2-40-DP-14. Groundwater downgradient of cVOC-7 will be monitored by the EMF monitoring well network and by proposed shoreline wells at Locations G and H as shown on Figures 2-1 and 2-2. These data will be evaluated in the CMI process to determine if cVOC analyses should be discontinued.
- cVOC-8 is an area of C-Level exceedences defined by two probe locations, 2-40-DP-37 and 2-40-DP-38, with a vinyl chloride concentration of 7.9 µg/L and a maximum cDCE concentration of 650 µg/L. These results are considered anomalous and not reliable because shallower samples from this probe were non-detect for vinyl chloride and cDCE and a sample from the nearby well PL2-442C location was also non-detect for vinyl chloride and had a cDCE concentration of 1.9 µg/L. The proposed FMCL for cDCE is 130 µg/L. Groundwater monitoring for cVOC-8 in the C-Level of the aquifer for the anomalous vinyl chloride and cDCE exceedences based on probe samples is not warranted.
- cVOC-9 represents several single A-Level exceedences based on direct-push probe locations along the waterway. However, samples from nearby wells were non-detects or had detections of cVOCs that were less than proposed FMCLs and the TCE TMCL, so the probe results represented by cVOC-9 are considered anomalous and not reliable. Groundwater monitoring is not warranted for cVOC-9 because it is based on anomalous probe results; however, proposed shoreline well Location G, which is within the historical footprint of the EMF Plume and is downgradient of cVOC-7, will also monitor groundwater near cVOC-9 as shown on Figures 2-1 and 2-2. These data will be evaluated in the CMI process to determine if cVOC analyses should be discontinued.

The area within the historical footprint of the EMF Plume will be monitored by proposed shoreline wells at Location G and Location H as shown on Figures 2-1 and 2-2. These well locations, to be monitored under the Plant 2 AOC, augment the four EMF wells installed near the shoreline within the historic footprint of the EMF Plume that will serve as the primary monitoring wells for the EMF Plume along the waterway under the separate EMF Order.

A more detailed presentation of the groundwater data associated with cVOC-7 through cVOC-9 is presented in the *Uplands Corrective Measures Study Volume VIb: 2-40s Area Data Gap Investigation Report (EPI and Golder, 2009b)*.

#### **2.2.4 Area South of 16<sup>th</sup> Avenue Bridge**

Two cVOC exceedences south of the 16<sup>th</sup> Avenue Bridge, identified as cVOC-10 and cVOC-11, contained groundwater with TCE and vinyl chloride concentrations greater than proposed FMCLs based on DGI data. However, following completion of the DGI, vadose zone soil at cVOC-10 (which between the two plumes contained the greater concentrations of TCE and vinyl chloride) was excavated and the remediation product 3DMe was emplaced onto the water table to initiate ERD prior to backfilling with clean fill. Therefore, it is expected that plumes cVOC-10 and cVOC-11, as depicted, are a conservative representation of recent groundwater conditions because they represent data from pre-excavation and pre-3DMe conditions. Groundwater conditions in cVOC-10 and cVOC-11 are described in the following bullets and summarized in Table 2-1.

- cVOC-10 is an area of A-Level exceedences for TCE, cDCE, and vinyl chloride. The maximum TCE concentration was 18 µg/L in the sample from probe 2-40-DP-56. The maximum cDCE concentration was 350 µg/L in the sample from probe 2-31-DP-38. The maximum vinyl chloride concentration was 3,600 µg/L in the sample from probe 2-31-DP-38. Vinyl chloride concentrations for the remaining sampling points in cVOC-10 range from 2.6 µg/L to 51 µg/L. These concentrations from DGI work are likely significantly less following the remediation work described in the paragraph above. Groundwater downgradient of cVOC-10 will be monitored by proposed shoreline wells at Locations H and I as shown in Figures 2-1 and 2-2. These data will be evaluated in the CMI process to determine if cVOC analyses should be discontinued.
- cVOC-11 is an area of A-Level exceedences based on two A-Level probe samples with TCE concentrations of TCE at 2.9 µg/L and 3.6 µg/L, which are slightly greater than the TCE TMCL of 1.4 µg/L. Groundwater at cVOC-11 will be monitored by proposed shoreline well at Location I as shown in Figures 2-1 and 2-2. These data will be evaluated in the CMI process to determine if cVOC analyses should be discontinued.

A more detailed presentation of the groundwater data associated with cVOC-10 and cVOC-11 is presented in the *Uplands Corrective Measures Study Volume VIIIb: 2-31 Area Data Gap Investigation Report (EPI and Golder, 2010a)*.

#### **2.2.5 2-10 South Sheetpile**

The 2-10 south sheetpile represented by exceedence area cVOC-15 and several nearby cVOC exceedence areas represented by cVOC-12, cVOC-13, cVOC-14, and cVOC-16 are shown on Figure 2-2. The concentrations noted for cVOC-15 are DGI data, which were obtained prior to the current IM work performed in the 2-10 south sheetpile area. The IM includes both soil vapor extraction (SVE) for soil impacts and ERD for groundwater impacts. As reported separately, this IM work has reduced the concentrations of cVOCs inside and to the east of the 2-10 south sheetpile. While current cVOC concentrations are less than those depicted here to describe cVOC-15, the more recent IM data do not affect placement of the existing shoreline wells in that area. Groundwater conditions in cVOC-12 through cVOC-16 are described in the following bullets and are summarized in Table 2-1.

- cVOC-12 is an area of A-Level exceedences based on a single probe sample from 2-10-DP-104 with a TCE concentration of 3.1 µg/L. cVOC-12 is well delineated by nine probe and three well sample locations, all non-detect for TCE. In addition, downgradient shoreline monitoring well PL2-227A has a consistent history of non-detects for cVOCs as demonstrated by the time series graph presented in Attachment C. The low single-digit µg/L TCE detection in a single probe sample represented by cVOC-12 does not warrant continued monitoring at PL2-227A as further described above and in Section 3.2.
- cVOC-13 is an area of A-Level exceedences based on samples from two probe locations with TCE concentrations of 2.2 µg/L and 3.3 µg/L. cVOC-13 is well delineated and the low single-digit µg/L TCE detections in probe samples represented by cVOC-13 do not warrant monitoring.
- cVOC-14 is an area of B-Level exceedences based on a single probe sample with a TCE concentration of 8.9 µg/L. The A-Level sample from this probe was non-detect for TCE. In addition, nearby well PL2-262B had a TCE detection of 0.8 µg/L, which is less than the TCE TMCL of 1.4 µg/L. The single-digit µg/L TCE detection in a single B-Level probe sample, represented by cVOC-14, does not warrant monitoring. The time series graph for well PL2-214B, included in Attachment C, demonstrates a consistent record, from 2001 to present, of non-detects for cVOCs. However, groundwater downgradient of cVOC-14 will continue to be monitored by existing shoreline monitoring well PL2-214B as shown on Figure 2-2. This monitoring is warranted because the ongoing ERD IM being performed inside of and upgradient of the 2-10 south sheetpile creates temporary groundwater mounding during nutrient substrate injections, which causes transient effects on groundwater flow patterns. When the 2-10 ERD IM is completed data from PL2-214B will be re-evaluated to determine if continued monitoring is warranted.
- cVOC-15 is an area of A-Level exceedences based on TCE and vinyl chloride concentrations inside of and upgradient to the 2-10 south sheetpile. The maximum DGI concentration of TCE was 58 µg/L in a sample from probe 2-10-DP-098. The maximum DGI concentration of vinyl chloride was 91 µg/L in a sample from well PL2-253A. The maximum concentrations are from the DGI, which was performed in March 2010 in this area. More recent cVOC concentrations are significantly less due to the IM work described above. As an example, the January 2014 IM groundwater sample from PL2-253A had a vinyl chloride concentration of 0.7 µg/L. In addition, the time series graph for well PL2-214A, included in Attachment C, demonstrates a consistent record, from 2001 to present, of non-detections for cVOCs. However, groundwater downgradient of cVOC-15 will continue to be monitored by existing shoreline monitoring well PL2-214A as shown on Figure 2-2. This monitoring is warranted because the ongoing ERD IM being performed inside of and upgradient of the 2-10 south sheetpile creates temporary groundwater mounding during nutrient substrate injections, which causes transient effects on groundwater flow patterns. When the 2-10 ERD IM is completed data from PL2-214A will be re-evaluated to determine if continued monitoring is warranted.

- cVOC-16 is an area of A-Level exceedences based on a single probe sample from 2-10-DP-110 with a TCE concentration of 6.9 µg/L. This concentration is considered anomalous and not reliable because the DGI sample result for nearby well PL2-232A was non-detect for TCE. In addition, the time series graph for shoreline well PL2-232A, presented in Attachment C, demonstrates a consistent record, from 2001 to present, of cVOCs that were non-detect or were detected at concentrations less than their TMCL (for TCE) and proposed FMCLs. cVOC-16 does not warrant continued monitoring in existing shoreline well PL2-232A as described above and in Section 3.2.

A more detailed presentation of the groundwater data associated with cVOC-12 through cVOC-16 is presented in the *Uplands Corrective Measures Study Volume IXb: 2-10 Area Data Gap Investigation Report (EPI and Golder, 2010b)*.

#### **2.2.6 2-10 North Sheetpile**

The 2-10 north sheetpile is represented by TMCL and proposed FMCL exceedence area cVOC-18 and several nearby cVOC exceedence areas that are represented by cVOC-17 and cVOC-19 are shown on Figure 2-2. The cVOC concentrations noted for cVOC-18 and cVOC-19 are DGI data, which were obtained prior to the IM work performed in the 2-10 north sheetpile, which includes both SVE for soil impacts and ERD for groundwater impacts. As reported separately, this IM work has reduced the concentrations of cVOCs inside and to the west of the 2-10 north sheetpile. While current cVOC concentrations are less than those depicted here to describe cVOC-18 and cVOC-19, the more recent IM data do not affect the proposed disposition of the existing shoreline wells in that area. Groundwater conditions for cVOCs in cVOC-17, cVOC-18, and cVOC-19 are described in the following bullets and are summarized in Table 2-1.

- cVOC-17 is an area of A-Level exceedences based on a single probe sample with a TCE concentration of 1.5 µg/L, which is slightly greater than the TCE TMCL of 1.4 µg/L. This slight exceedence is well delineated by non-detects in samples from nine nearby surrounding probes. As a result, the TCE concentration noted at cVOC-17 does not warrant monitoring.
- cVOC-18 is an area of A-Level exceedences for TCE, cDCE, tDCE, and vinyl chloride inside of and downgradient of the 2-10 north sheetpile. The maximum DGI concentration for TCE was 62,000 µg/L in the sample from well PL2-212A. The maximum DGI concentration for cDCE was 150,000 µg/L in the sample from probe 2-10-DP-038. The maximum concentration of tDCE was 4,800 µg/L in the sample from 2-10-DP-038. The maximum DGI concentration for vinyl chloride was 28,000 µg/L, also in sample from probe 2-10-DP-038. All three maximum concentrations were from sampling locations inside of the sheetpile. These concentrations are from the DGI, which was performed in March 2010 in this area. Current cVOC concentrations are significantly less due to the IM work described above. As an example, the January 2014 IM groundwater samples from well PL2-212A had TCE, cDCE, and vinyl chloride concentrations of non-detect, 420 µg/L, and 550 µg/L, respectively. Groundwater downgradient of cVOC-18 will continue to be

monitored by existing shoreline well PL2-258A as shown on Figure 2-2. This monitoring is warranted because the ongoing ERD IM being performed inside of and upgradient of the 2-10 north sheetpile creates temporary groundwater mounding during nutrient substrate injections, which causes transient effects on groundwater flow patterns. When the 2-10 ERD IM is completed data from PL2-258A and PL2-258B will be re-evaluated to determine if continued monitoring is warranted.

- cVOC-19 is an area of B-Level exceedences based on a single sample from PL2-218B with a vinyl chloride concentration of 3.5 µg/L and a cDCE concentration of 9,800 µg/L. These concentrations are from the DGI and more recent cVOC concentrations are significantly less due to the IM work described above. As an example, the January 2014 IM groundwater sample from well PL2-218B had cDCE and vinyl chloride concentrations of 180 µg/L and non-detect, respectively. The time series graph for shoreline well PL2-258B, which is presented in Attachment C, demonstrates recent decreases in cVOC concentrations particularly for August 2013, which is the most recent shoreline monitoring event for which data are available. Groundwater downgradient of cVOC-19 will continue to be monitored by existing shoreline well PL2-258B as shown on Figure 2-2. This monitoring is warranted because the ongoing ERD IM being performed inside of and upgradient of the 2-10 north sheetpile creates temporary groundwater mounding during nutrient substrate injections, which causes transient effects on groundwater flow patterns. When the 2-10 ERD IM is completed data from PL2-258A and PL2-258B will be re-evaluated to determine if continued monitoring is warranted.

A more detailed presentation of the groundwater data associated with cVOC-17 through cVOC-19 is presented in the *Uplands Corrective Measures Study Volume IXb: 2-10 Area Data Gap Investigation Report (EPI and Golder, 2010b)*.

### **2.3 Copper or Zinc Exceedences in Groundwater**

Twenty identified areas of metals, specifically copper and zinc, in groundwater at concentrations greater than their proposed FMCLs are shown on Figures 2-3 and 2-4 for the South and North portions of Plant 2, respectively. Because of the relatively large number of individually isolated proposed FMCL exceedences of copper and zinc in groundwater, only exceedence areas CuZn-1 through CuZn-20, which are in relatively close proximity to the point of compliance (POC) are identified and evaluated with regard to shoreline monitoring well placement in this work plan.

Areas with arsenic proposed FMCL exceedences are depicted separately on Figure 2.5 and Figure 2.6 because arsenic occurrences in groundwater at Plant 2 result not from arsenic releases per se, but from reducing geochemical conditions, which is a different mechanism than what is assumed responsible for the presence of elevated concentrations of copper and zinc in groundwater.

Figures 2-3 and 2-4 also contain the proposed locations of new shoreline monitoring wells, which are temporarily identified as Locations A through I on the figures as previously proposed for cVOC plumes

in this work plan. These temporary location identifiers will be replaced with permanent well identifiers, which will follow the well naming format for Plant 2, during well installation.

There are several general areas of copper and zinc exceedences in groundwater identified on Figures 2-3 and 2-4 that may require ongoing monitoring using the proposed shoreline monitoring well network. No proposed new well location exists solely to monitor metals exceedences, i.e., they are primarily located for cVOC exceedences; however, some locations may also serve to monitor metals exceedences. Beginning at the southern property boundary and moving north, the four general areas of copper and zinc exceedences in groundwater are described in the following sections. Data are summarized here solely to propose CMI phase shoreline monitoring locations and constituents at each location. This evaluation will be expanded upon in the CMS Report. Particularly in the case of metals, proposed monitoring draws upon the results of twelve years of data collected during the CMS Phase Shoreline Monitoring program.

Conclusions based on the evaluation of the 20 CuZn exceedence areas are grouped into three general outcomes and summarized below:

- An apparent CuZn exceedence area that is likely anomalous will be monitored for two semiannual shoreline monitoring events using one or more of the proposed or existing downgradient shoreline monitoring wells. Monitoring for metals will be discontinued if the two rounds of data demonstrate that the apparent CuZn exceedences were anomalous. This conclusion applies to CuZn-1, CuZn-2, and CuZn-8 through CuZn-11;
- New shoreline wells installed near decommissioned shoreline well locations with historical data demonstrating compliance with FMCLs for metals will be monitored for two semiannual shoreline monitoring events to confirm comparability with the historical data. If the new metals data are comparable to historical data, statistical analyses will be performed using a combination of new and historical data to determine if continued metals analysis is warranted at those wells. This conclusion applies to CuZn-3; and
- Further monitoring is not warranted. This conclusion applies to CuZn-4 through CuZn-7 and CuZn-12 through CuZn-20.

One of these conclusions is noted for each of the identified CuZn exceedence areas that are presented in the following sections.

### **2.3.1 2-66 Sheetpile and Surrounding Area**

Groundwater in the 2-66 sheetpile and the surrounding area that contains copper and zinc at concentrations greater than proposed FMCLs is represented by areas designated CuZn-1 through CuZn-9. Most of the groundwater with copper or zinc exceedences is in the A-Level of the aquifer; however, B-Level exceedences, identified as CuZn-8 and CuZn-9, are located immediately outside of the 2-66 sheetpile and another B-Level occurrence farther inland is identified as CuZn-5. A single C-

Level occurrence, identified as CuZn-6, is also present in this area. Groundwater conditions in CuZn-1 through CuZn-9 are described in the following bullets and are summarized in Table 2-2.

- CuZn-1 is a B-Level exceedence based on one round of sample results from wells PL2-602B and PL2-603B with zinc concentrations of 717 µg/L and 382 µg/L, respectively. Both wells were installed and sampled as part of the DGI and the elevated zinc concentrations are likely due to the disturbed nature of the new wells, which temporarily caused naturally occurring metals, including zinc, to be dissolved in groundwater at greater concentrations than under normal, undisturbed conditions. The proposed property boundary monitoring well network will monitor zinc exceedences represented by CuZn-1, which is not included within the scope of this work plan. Proposed shoreline wells at Locations A and B will also serve as downgradient monitoring locations for CuZn-1 as shown on Figure 2-3. Locations A and B will be monitored for metals for two shoreline monitoring events to evaluate if the DGI data defining CuZn-1 were anomalous. Monitoring for metals at Locations A and B will be discontinued if the two rounds of data demonstrate that the apparent CuZn-1 exceedences were anomalous.
- CuZn-2 is an A-Level exceedence based on a single probe location at 2-66-DP-33 with a zinc concentration of 270 µg/L. The zinc concentration for a sample from well PL2-027A, located immediately downgradient of CuZn-2 was 8.0 µg/L, which being significantly less than the proposed FMCL of 56 µg/L indicates that the result from 2-66-DP-33 is likely anomalous. In addition, decommissioned shoreline wells PL2-JF01AR, PL2-JF01B, PL2-JF01C, and PL2-044B were downgradient of CuZn-2 at approximately the same locations as proposed Locations A and B. Time series graphs for PL2-JF01AR, PL2-JF01B, PL2-JF01C, and PL2-044B (presented in Attachment C) demonstrate that monitoring for metals downgradient of CuZn-2 is not warranted. Locations A and B will be monitored for metals for two shoreline monitoring events to evaluate if the DGI data defining CuZn-2 were anomalous. Monitoring for metals at Locations A and B will be discontinued if the two rounds of data demonstrate that the apparent CuZn-2 exceedences were anomalous.
- CuZn-3 is an area of A-Level exceedences based on copper concentrations in samples from one well and two probe locations. The maximum copper concentration is in 74.6 µg/L in the sample from probe 2-66-DP-25. The remaining copper concentrations were 8.7 µg/L and 8.8 µg/L, which are just slightly greater than the proposed FMCL of 8.0 µg/L. Probe 2-66-DP-25 data may be considered less reliable (due to turbidity common to probe samples), than the nearby data, which includes another probe sample and a more reliable well sample that serve to delineate the CuZn-3 exceedences. These data collectively are not sufficiently greater than the copper proposed FMCL to warrant downgradient monitoring of CuZn-3. In addition, decommissioned shoreline wells PL2-607A, PL2-015AR, and PL2-036AR were downgradient of CuZn-3 at approximately the same locations as proposed Location C through Location F. Time series graphs for PL2-607A, PL2-015AR, and PL2-036AR (presented in Attachment C) demonstrate that monitoring for metals downgradient of CuZn-3 is not warranted. However, proposed shoreline wells at Locations C through F (see Figure 2-3) are located downgradient of CuZn-3 and will be monitored for metals for

two shoreline monitoring events to confirm comparability with the historical data. If the new data are comparable to historical data from previous shoreline monitoring wells in the area statistical analyses will be performed using a combination of new and historical data to determine if continued metals analysis is warranted at Locations C through F.

- CuZn-4 is an A-Level exceedence based on a single probe location with a zinc concentration of 583 µg/L. Seven surrounding sampling locations have concentrations less than the zinc proposed FMCL of 56 µg/L. The single high exceedence is well delineated by nearby data. As a result, CuZn-4 does not warrant monitoring.
- CuZn-5 is a B-Level exceedence based on a single probe location with a zinc concentration of 66 µg/L. CuZn-5 is delineated by results from downgradient well PL2-036B with a zinc concentration of 17 µg/L. As a result, CuZn-5 does not warrant monitoring.
- CuZn-6 is a C-Level exceedence based on a copper concentration of 14 µg/L in a sample from C-Level well PL2-026C. Copper was not detected in in the B-Level sample from co-located well PL2-026B or in a sample from nearby C-Level well PL2-036C. The elevated copper concentration is likely due to elevated salinity in C-Level groundwater, which naturally has greater concentrations of dissolved naturally occurring minerals, including copper. Elevated salinity is demonstrated by conductivity measurements in the field parameter data provided in Attachment B. (The same is true but to a lesser extent in B-Level water, which is generally brackish.) As such, CuZn-6 copper concentrations may be attributed to C-Level salinity effects, and do not warrant monitoring.
- CuZn-7 represents small areas of A-Level exceedences for copper and zinc at maximum concentrations of 42 µg/l and 12,100 µg/L, respectively. All locations represented by CuZn-7 are in the Southwest Bank, which has had source material (i.e., debris fill) removed by bank cutback work performed as part of the DSOA. Given this source removal action, CuZn-7 does not warrant monitoring.
- CuZn-8 is a B-Level exceedence based on a single copper concentration of 14 µg/L in a sample from B-Level well PL2-043B. Well PL2-043B was a shoreline monitoring well that consistently yielded samples with copper less than the proposed FMCL of 8.0 µg/L for years both before and after the DGI was performed as demonstrated by shoreline wells time series graphs presented in Attachment C. These data indicate that the DGI results for the PL2-043C sample are anomalous and not reliable. As such, CuZn-8 does not warrant monitoring. However, the proposed B-Level shoreline well at Location B (see Figure 2-3) is located near CuZn-8 will be monitored for metals at Location B for two shoreline monitoring events to evaluate if the single round of DGI data defining CuZn-8 were anomalous. Monitoring for metals will be discontinued at Location B if the two rounds of data demonstrate that the apparent CuZn-8 exceedence was anomalous.



- CuZn-9 is an area of B-Level exceedences based on two B-Level piezometer locations screened immediately outside of the 2-66 sheetpile with zinc concentrations of 542 µg/L and 146 µg/L. Samples from both of these piezometer locations were likely affected by the sheetpile steel itself and as such, both exceedences are considered anomalous. In addition, decommissioned shoreline wells PL2-043B and PL2-044B were downgradient of CuZn-9 and near proposed Locations A and B. The time series graphs for PL2-043B and PL2-044B (presented in Attachment C) demonstrate that monitoring for metals downgradient of CuZn-9 is not warranted. Locations A and B will be monitored for metals for two shoreline monitoring events to evaluate if the DGI data defining CuZn-9 were anomalous. Monitoring for metals will be discontinued if the two rounds of data demonstrate that the apparent CuZn-9 exceedences were anomalous.

A more detailed presentation of the groundwater data associated with CuZn-1 through CuZn-9 is presented in the *Uplands Corrective Measures Study Volume Vb: 2-66 Area Data Gap Investigation Report (EPI and Golder, 2007c)*.

### **2.3.2 EMF Plume Area**

Figure 2-3 depicts several small B- and C-Level copper and zinc proposed FMCL exceedences along the bank of the Duwamish Waterway within the historical footprint of the EMF Plume. These small areas of copper and zinc exceedences have collectively been designated as CuZn-10. Groundwater conditions at CuZn-10 are described in the following bullet and are summarized in Table 2-2.

- CuZn-10 represents small areas of B- and C-Level exceedences. With one exception, each of the exceedences in CuZn-10 is based on single probe samples that in corresponding A-Level samples were non-detect or had concentrations less than proposed FMCLs. This indicates that those deeper exceedences are not due to releases from Plant 2. The only non-probe sample exceedence was a copper concentration of 9.0 µg/L (proposed FMCL of 8.0 µg/L) in the sample from well PL2-420C. Copper concentrations from co-located wells PL2-420A and PL2-420B were non-detect and 0.9 µg/L, respectively. The time series graph for metals in samples from shoreline well PL2-420A demonstrates copper concentrations consistently less than its proposed FMCL (see Attachment C). The C-Level copper result is likely attributable to the high salinity of the C-Level of the aquifer (as indicated by high conductivity in field parameter data are provided in Attachment B) and normal sample variability and, as such, does not warrant further monitoring. The probe sample based copper and zinc exceedences represented by CuZn-10 do not warrant monitoring. However, the proposed B-Level shoreline wells at Locations G and H (see Figures 2-3 and 2-4) are located near CuZn-10 and will be monitored for metals for two shoreline monitoring events to evaluate if the DGI data defining CuZn-10 were anomalous. Monitoring for metals at Locations G and H will be discontinued if the two rounds of data demonstrate that the apparent CuZn-10 exceedences were anomalous.

A more detailed presentation of the groundwater data associated with CuZn-10 is presented in the *Uplands Corrective Measures Study Volume VIb: 2-40s Area Data Gap Investigation Report (EPI and Golder, 2009b)*.

### **2.3.3 South of 16<sup>th</sup> Avenue Bridge**

Three areas of copper and zinc proposed FMCL exceedences in groundwater south of the 16<sup>th</sup> Avenue Bridge are identified as CuZn-11, CuZn-12, and CuZn-13, as shown on Figures 2-3 and 2-4. These areas of groundwater are described in the following bullets and are summarized in Table 2-2.

- CuZn-11 is an area of B-Level exceedences that is based on seven probe sample results with zinc concentrations ranging from 60 µg/L to 190 µg/L. Zinc was not detected in A-Level samples from six of the seven probe locations and was detected at a concentration of 10 µg/L in the remaining probe location. This indicates that the zinc exceedences noted in B-Level probe samples did not originate from zinc releases, which would have been detected in co-located A-Level samples and are likely anomalous results from probe samples. As a result the B-Level samples represented by CuZn-11 do not warrant monitoring. However, the proposed B-Level shoreline well at Location I (see Figures 2-3 and 2-4) is located within CuZn-11 and will be monitored for metals for two shoreline monitoring events to evaluate if the DGI data defining CuZn-10 were anomalous. Monitoring for metals at Location I will be discontinued if the two rounds of data demonstrate that the apparent CuZn-11 exceedences were anomalous.
- CuZn-12 is an area of A-Level exceedences that is based on three probe locations with copper concentrations ranging from 13 µg/L to 20.6 µg/L. Copper concentrations in samples from nearby A-Level wells were 0.6 µg/L and 1.8 µg/L, both of which are less than the proposed FMCL of 8.0 µg/L. The data from well samples are more representative and reliable than probe sample data and as such the copper concentrations from the three probe samples represented by CuZn-12. As a result, CuZn-12 does not warrant monitoring.
- CuZn-13 is a C-Level exceedence based on a single C-Level occurrence of copper at a concentration of 11 µg/L in the DGI sample from PL2-501C. This result is likely due to high salinity in the C-Level groundwater, as noted in the PL2-501C field parameter conductivity data provided in Attachment B. Copper concentrations in the samples from PL2-501A and PL2-501B were 0.6 µg/L and non-detect, respectively. The slight copper exceedence at CuZn-13 is likely the result of groundwater salinity and is not supported by shallower sample results. As a result, CuZn-13 does not warrant monitoring.

A more detailed presentation of the groundwater data associated with CuZn-11 through CuZn-13 is presented in the *Uplands Corrective Measures Study Volume VIIIb: 2-31 Area Data Gap Investigation Report (EPI and Golder, 2010a)*.

### **2.3.4 North of the 16<sup>th</sup> Avenue Bridge**

There are seven small areas of copper and zinc proposed FMCL exceedances at or close to the waterway north of the 16<sup>th</sup> Avenue Bridge. These areas have been designated as CuZn-14 through CuZn-20 as shown on Figure 2-4. These minor occurrences of copper and zinc at concentrations greater than their proposed FMCLs do not warrant installation of additional shoreline monitoring wells, as explained in the following bullets and are summarized in Table 2-2.

- CuZn-14 is a C-Level exceedence that is based on a single well location, PL2-227C, with a zinc concentration of 70 µg/L. The presence of zinc in the C-Level sample at this location is likely due to the saline C-Level groundwater, which naturally has greater concentrations of dissolved naturally occurring minerals, including zinc. Conductivity data for the purge water from PL2-227C indicate high salinity in this sample (see field parameter data in Attachment B). In addition, samples from PL2-227A and PL2-227B were non-detect for zinc. This indicates that the CuZn-14 zinc exceedence noted in PL2-227C did not originate from zinc releases, which would have been detected in co-located A-Level and B-Level well samples. As a result, CuZn-14 does not warrant monitoring.
- CuZn-15 is a B-Level exceedence that is based on a single probe location, 2-10-DP-094, with a zinc concentration of 60 µg/L. CuZn-15 is well delineated by sample results from nearby surrounding probes that were non-detect for zinc in samples from two probes and 20 µg/L for zinc in a sample from one probe. As a result, CuZn-15 does not warrant monitoring.
- CuZn-16 is a single A-Level exceedence that is based on a single probe location, 2-10-DP-099, with a copper concentration of 15.7 µg/L. CuZn-16 is well delineated by sample results from nearby probes and wells with low single-digit µg/L copper concentrations. In addition, this location is hydraulically contained within the 2-10 south sheetpile. As a result, CuZn-16 does not warrant monitoring.
- CuZn-17 contains three areas of A-Level exceedences based on six probe sample results with copper concentrations ranging from 9.1 µg/L to 17.7 µg/L. CuZn-17 is well delineated by sample results from nearby probes and wells with low single-digit µg/L copper concentrations. As a result, CuZn-16 does not warrant monitoring.
- CuZn-18 is a single C-Level exceedence that is based on a single probe location, NA-DP-46, with a zinc concentration of 150 µg/L. The A- and B-Level samples from the same probe were non-detect for zinc and the presence of zinc in the C-Level sample at this location is likely due to the saline C-Level groundwater, as noted for CuZn-14 above. As a result, CuZn-18 does not warrant monitoring.
- CuZn-19 represents three areas of B-Level exceedences for zinc; each area is based on a single probe location. Zinc concentrations were 100 µg/L in the B-Level sample from NA-DP-42 and 120 µg/L in the B-Level samples from NA-DP-36 and NA-DP-39. A-Level

samples at all three locations represented by CuZn-19 were non-detect for zinc. It is likely that groundwater in the brackish B-Level of the aquifer combined with the close proximity to the saline groundwater wedge near the waterway resulted in high conductivity values for the B-Level samples from probes NA-DP-36, NA-DP-39, and NA-DP-42 (see Attachment B). As a result, CuZn-19 does not warrant monitoring.

- CuZn-20 is an A-Level exceedence that is based on a single probe location, NA-DP-01, with zinc at a concentration of 120 µg/L and copper at a concentration of 13.1 µg/L. The vadose zone soil associated with this sample location was excavated and removed as part of a habitat restoration project. Given this source removal action, CuZn-20 does not warrant monitoring.

More detailed presentations of the groundwater data associated with CuZn-14 through CuZn-20 are presented in the *Uplands Corrective Measures Study Volume IXb: 2-10 Area Data Gap Investigation Report (EPI and Golder, 2010b)* and *Uplands Corrective Measures Study Volume VIIb: North Area Data Gap Investigation Report (EPI and Golder, 2009a)*.

#### **2.4 Arsenic Exceedences in Groundwater**

Areas of groundwater with arsenic concentrations greater than proposed FMCLs are shown on Figures 2-5 and 2-6 for the South and North portions of Plant 2, respectively. Because of the large number of small but individual occurrences of groundwater samples exceeding the proposed FMCL for arsenic, only those areas that are relevant to shoreline monitoring well placement are identified on Figures 2-5 and 2-6.

Arsenic plumes are depicted separately from copper and zinc plumes because arsenic occurrences in groundwater at Plant 2 result from reducing geochemical conditions, which is a different mechanism than what is responsible for the presence of elevated concentrations of copper and zinc in groundwater. Elevated arsenic concentrations in groundwater are commonly associated with reducing geochemical conditions, which are common throughout the upland area of Plant 2, as noted in field parameter summary tables in Attachment B. At sampling locations close to the Duwamish Waterway, significant tidal fluctuations result in increased dissolved oxygen (DO) concentrations and generally positive oxidation-reduction potential (ORP), which reduces the solubility of arsenic thus lowering arsenic concentrations in groundwater. With a few exceptions, groundwater near the waterway consistently has arsenic at concentrations less than its proposed FMCL. This effect can be seen on Figures 2-5 and 2-6.

Figures 2-5 and 2-6 also contain the proposed locations of new shoreline monitoring wells, which are temporarily identified as Locations A through I on the figures. These temporary location identifiers will be replaced with permanent well identifiers (which will follow the well naming format for Plant 2) during well installation.

The occurrences of arsenic that were considered in the evaluation of shoreline monitoring well placement have been identified as Arsenic-1 through Arsenic-11 on Figures 2-5 and 2-6. Beginning at

the southern property boundary and moving north, the identified arsenic exceedences in groundwater potentially requiring shoreline monitoring are presented in the following sections.

Conclusions based on the evaluation of the 11 Arsenic exceedence areas are grouped into five general outcomes and summarized below:

- New shoreline wells installed near decommissioned shoreline well locations with historical data demonstrating compliance with FMCLs for arsenic will be monitored for two semiannual shoreline monitoring events to confirm comparability with the historical data. If the new arsenic data are comparable to historical data, statistical analyses will be performed using a combination of new and historical data to determine if continued arsenic analysis is warranted at those wells. This conclusion applies to Arsenic-1, Arsenic-2, Arsenic-4, and Arsenic-5;
- Arsenic exceedence area will be monitored using one or more of the proposed or existing downgradient shoreline monitoring wells. This conclusion further assumes that the well(s) will be sampled following the shoreline monitoring schedule until FMCLs are met. This conclusion applies to Arsenic-3, Arsenic-8, and Arsenic-9;
- Arsenic exceedence area will be monitored by one or more proposed or existing downgradient shoreline monitoring wells following the shoreline monitoring schedule until the ongoing 2-10 Sheetpile IMs are completed, at which time data from those wells will be evaluated to determine if further monitoring is warranted. This conclusion applies to Arsenic-6;
- An apparent arsenic exceedence area that is likely anomalous will be monitored for two semiannual shoreline monitoring events using one or more of the proposed or existing downgradient shoreline monitoring wells. Monitoring for metals will be discontinued if the two rounds of data demonstrate that the apparent arsenic exceedences were anomalous. This conclusion applies to Arsenic-10 and Arsenic-11; and
- Further monitoring is not warranted. This conclusion applies to Arsenic-7.

One of these conclusions is noted for each of the identified Arsenic exceedence areas that are presented in the following sections.

#### **2.4.1 Southern Property Boundary and OA-12 IM Area**

The southern property boundary at Plant 2 contains a large area of arsenic in A-Level groundwater, identified as Arsenic-1, at concentrations greater than the arsenic proposed FMCL and four small areas of arsenic, collectively identified as Arsenic-2, as shown on Figure 2-5. Arsenic-1 and Arsenic-2 are described in the following bullets and are summarized in Table 2-3.

- Arsenic-1 is a large area of A-Level exceedences for arsenic that roughly corresponds to an area of cVOC exceedences of a similar size and shape, designated cVOC-1, which was presented on Figure 2-1. The greatest arsenic concentration in Arsenic-1 was for a sample

from PL2-156A with a concentration of 99.8 µg/L, which is greater than the proposed FMCL of 8.0 µg/L. The presence of cVOCs and other organics in groundwater resulted in reducing geochemical conditions in this area, which increases the solubility of naturally occurring arsenic. The reducing geochemical conditions of low DO and negative ORP are noted in the South Yard Area field parameter measurements that are included in Attachment B. Groundwater associated with Arsenic-1 will be monitored by the proposed property boundary monitoring well network, which is shown on Figure 2-5 but is not included within the scope of this well installation work plan. However, proposed shoreline A-Level wells at Location A, and to some extent, Location B will also be used to monitor groundwater for arsenic downgradient of Arsenic-1 for two shoreline monitoring events to confirm comparability with the historical data. If the new data are comparable to historical data from previous shoreline monitoring wells in the area statistical analyses will be performed using a combination of new and historical data to determine if continued arsenic analysis is warranted at Locations A and B.

- Arsenic-2 includes four small isolated A-Level exceedence areas with the greatest concentration, 37.9 µg/L, in the sample from probe 2-66-DP-30. Three of the four locations included in Arsenic-2 are defined by single probe samples, the location nearest to the waterway is defined by probe sample 2-66-DP-30 and a sample from well PL2-019A that had an arsenic concentration of 17.8 µg/L. These locations are approximately within or downgradient of the OA-12 IM. Measured DO and ORP values in the 2-60s Area are generally not as low as those noted for the South Yard Area. This indicates that geochemical conditions in this area were not as reducing as noted for samples from locations in Arsenic-1, which is supported by the small and sparse areas with concentrations of arsenic in groundwater exceeding its proposed FMCL. As a result, Arsenic-2 does not warrant monitoring. However, groundwater downgradient of Arsenic-2 will be monitored for arsenic in the A-Level well at proposed shoreline well Location C for two shoreline monitoring events to confirm comparability with the historical data. If the new data are comparable to historical data from previous shoreline monitoring wells in the area statistical analyses will be performed using a combination of new and historical data to determine if continued arsenic analysis is warranted at Location C.

A more detailed presentation of the groundwater data associated with Arsenic-1 and Arsenic-2 is presented in the *Uplands Corrective Measures Study Volume IIIb: South Yard Area Data Gap Investigation Report (EPI and Golder, 2007a)*.

#### **2.4.2 Central Plant 2 and EMF Plume Area**

Geochemical conditions within the historical footprint of the EMF Plume were modified to be highly reductive through injections of nutrient substrates used to promote ERD. This condition is the likely cause for the large area of arsenic at concentrations greater than the proposed FMCL, which is identified as Arsenic-4 on Figure 2-5. Groundwater near the EMF Plume also contains smaller areas of groundwater exceedences identified as Arsenic-3 and Arsenic-5. These areas are discussed in the following bullets and are summarized in Table 2-3.

- Arsenic-3 is an area of A-Level groundwater with arsenic exceedences that are defined by three sampling locations consisting of two probes and one well. The greatest arsenic concentration in Arsenic-3 was 26 µg/L in the sample from probe 2-40-DP-34. Arsenic-3 is well delineated by results from four downgradient probes with arsenic concentrations ranging from 2.7 µg/L to 7.2 µg/L. The proposed A-Level shoreline well at Location F is immediately downgradient of Arsenic-3 and is near the former location of decommissioned shoreline well PL2-425A. The time series graph for metals data from PL2-425A shows consistent arsenic concentrations generally in the 15 to 20 µg/L range, which exceeds the proposed FMCL of 8.0 µg/L. As a result arsenic will be analyzed in samples from the A-Level well at Location F and these data will be evaluated in the CMI process to determine if arsenic analyses should be discontinued.
- Arsenic-4 is the largest area of arsenic exceedences on Figure 2-5 and includes many A-Level sampling locations, mostly probes, with generally single digit to low double-digit µg/L arsenic concentrations. The greatest arsenic concentration in Arsenic-4 is 39.3 µg/L from probe 2-40-DP-14. The only part of Arsenic-4 that extends close to the waterway is within the historical footprint of the EMF Plume, which has remediation substrate strongly reducing geochemical conditions to promote ERD. The downgradient extent of Arsenic-4 is well delineated by five wells and 22 probes and as a result Arsenic-4 does not warrant monitoring. However, the area downgradient of Arsenic-4 will be monitored for arsenic in the A-Level wells at proposed shoreline Locations E through I for two shoreline monitoring events to confirm comparability with the historical data. If the new data are comparable to historical data from previous shoreline monitoring wells in the area statistical analyses will be performed using a combination of new and historical data to determine if continued arsenic analysis is warranted at Locations E through I.
- Arsenic-5 is an A-Level exceedence based on a single probe location, 2-31-DP-10, with an arsenic concentration of 13 µg/L. Arsenic concentrations in A-Level samples from probes located downgradient of Arsenic-5 were 3.1 µg/L and non-detect. As a result, Arsenic-5 does not warrant monitoring. However, the area downgradient of Arsenic-5 will be monitored for arsenic in the A-Level well at proposed shoreline Location I for two shoreline monitoring events to confirm comparability with the historical data. If the new data are comparable to historical data from previous shoreline monitoring wells in the area statistical analyses will be performed using a combination of new and historical data to determine if continued arsenic analysis is warranted at Location I.

A more detailed presentation of the groundwater data associated with Arsenic-3 through Arsenic-5 is presented in the *Uplands Corrective Measures Study Volume VIb: 2-40s Area Data Gap Investigation Report (EPI and Golder, 2009b)*.

#### **2.4.3 2-10 Sheetpiles Area**

Arsenic was detected in A-Level groundwater samples at concentrations greater than its proposed FMCL at the 2-10 South Sheetpile, designated Arsenic-6, two small areas between the sheetpiles

designated as Arsenic-7 and Arsenic-8, and the 2-10 North Sheetpile, designated Arsenic-9. These arsenic occurrences are described in the following bullets and are summarized in Table 2-3.

- Arsenic-6 is an area of A-Level exceedences based on sample results from three probes and one well with a maximum concentration of 48.8 µg/L in the sample from probe 2-40-DP-93. All sampling locations in Arsenic-6 are inside of the south sheetpile, with the exception of the sample from probe 2-10-DP-91, which had an arsenic concentration of 12.8 µg/L (proposed FMCL is 8.0 µg/L). The area downgradient of Arsenic-6 has been monitored for arsenic since 2001 by existing shoreline wells PL2-214A, PL2-214B, and PL2-214C as shown in Figure 2-6. Time series graphs for wells PL2-214A, PL2-214B, and PL2-214C, which are downgradient of Arsenic-6, are presented in Attachment C. These time series graphs demonstrate that arsenic concentrations are consistently less than the proposed FMCL and monitoring is not warranted. However, groundwater downgradient of Arsenic-6 will continue to be monitored by existing shoreline monitoring wells PL2-214A and PL2-214B. This monitoring is appropriate because the ongoing ERD IM being performed inside of and upgradient of the 2-10 south sheetpile creates temporary groundwater mounding during nutrient substrate injections, which causes transient effects on groundwater flow patterns. The ERD IM also causes reducing geochemical conditions, which increases arsenic's solubility. When the 2-10 ERD IM is completed data from PL2-214A and PL2-214B will be re-evaluated to determine if continued monitoring is warranted.
- Arsenic-7 is an A-Level exceedence based on a single probe, 2-10-DP-089, with an arsenic concentration of 10.3 µg/L, which is only slightly greater than the proposed FMCL of 8.0 µg/L. This slight exceedence in a single probe sample does not warrant monitoring for arsenic at Arsenic-7.
- Arsenic-8 is an area of A-Level exceedences based on DGI sample results from two wells, PL2-240A and PL2-271A, with the greatest arsenic concentration of 17.6 µg/L in the sample from PL2-271A. PL2-271A is a shoreline monitoring well with a consistent history of arsenic at concentrations generally between 15 µg/L and 20 µg/L (see time series graph in Attachment C). Arsenic-8 will continue to be monitored by existing shoreline well PL2-271A and these data will be evaluated in the CMI process to determine if arsenic analyses should be discontinued at PL2-271A.
- Arsenic-9 is an area of A-Level exceedences based on data from wells and probes, most located inside of the 2-10 North Sheetpile, with the greatest arsenic concentration of 24.9 µg/L in the DGI sample from PL2-245A. PL2-258A, which is located downgradient of the sheetpile, had a DGI arsenic concentration of 5.2 µg/L. Time series graphs for wells PL2-258A, PL2-258B and PL2-258C are presented in Attachment C. The time series graphs for PL2-258B and PL2-258C demonstrate arsenic concentrations that are predominantly less than the proposed FMCL of 8.0 µg/L from 2001 to present and thus continued arsenic monitoring is not warranted in those wells. However, the time series graph for data from PL2-258A indicates some recent exceedences for arsenic, which will continue to be



monitored at this well. Groundwater data from PL2-258A will be evaluated in the CMI process to determine if arsenic analyses should be discontinued at PL2-258A.

A more detailed presentation of the groundwater data associated with Arsenic-6 through Arsenic-9 is presented in the *Uplands Corrective Measures Study Volume IXb: 2-10 Area Data Gap Investigation Report (EPI and Golder, 2010b)*.

#### **2.4.4 North Area**

Arsenic was detected in A-Level groundwater samples at concentrations greater than its proposed FMCL at two locations in the North Area of Plant 2. These areas have been designated Arsenic-10 and Arsenic-11 on Figure 2-6. Arsenic-10 and Arsenic-11 are described in the following bullets and are summarized in Table 2-3.

- Arsenic-10 is an A-Level exceedence that is based on a sample from a single probe location, NA-DP-30, with an arsenic concentration of 15.4 µg/L. Data from four probe locations downgradient of Arsenic-10 range from non-detect to 6.3 µg/L for arsenic. Groundwater downgradient of Arsenic-10 will be monitored for arsenic at existing well PL2-612A for two shoreline monitoring events to evaluate if the NA-DP-30 probe result is anomalous to determine if continued arsenic analysis is warranted at PL2-612A.
- Arsenic-11 is an A-Level exceedence based on a sample from a single probe location, NA-DP-34, with an arsenic concentration of 1,100 µg/L. However, the sample from nearby downgradient well PL2-612A (approximately 75 feet downgradient) had an arsenic concentration of 1.1 µg/L. Based on the more reliable well data it is likely that the elevated arsenic concentration in the sample from NA-DP-34 is anomalous. Groundwater downgradient of Arsenic-11 will be monitored for arsenic at existing well PL2-612A for two shoreline monitoring events to evaluate if the NA-DP-34 probe result is anomalous to determine if continued arsenic analysis is warranted at PL2-612A.

A more detailed presentation of the groundwater data associated with Arsenic-10 and Arsenic-11 is presented in the *Uplands Corrective Measures Study Volume VIIb: North Area Data Gap Investigation Report (EPI and Golder, 2009a)*.

### **3.0 PROPOSED NEW MONITORING WELLS**

New monitoring wells are proposed for two separate monitoring well networks at Plant 2; the shoreline monitoring well network and the upgradient monitoring well network. Fifteen new wells are proposed for the shoreline monitoring well network and three wells are proposed for the upgradient monitoring well network. The objectives and locations for the proposed new shoreline and upgradient monitoring wells are presented in the following sections.

#### **3.1 Shoreline Monitoring Well Network Objectives**

The general objectives of the shoreline monitoring well network are the following:

- Provide groundwater data at locations as close as practicable to the Duwamish Waterway that are within or downgradient of constituents of potential concern (COPCs) that were detected at concentrations greater than their proposed Final Media Cleanup Levels (FMCLs) as identified in the CMS process.
- Provide groundwater data that will be compared to proposed FMCLs for evaluations of groundwater regulatory compliance over time.
- Provide data to document groundwater discharges to the Lower Duwamish Waterway as related to verification of source control to the waterway, including the protection of sediment quality.

#### **3.2 Proposed Shoreline Monitoring Well Locations**

The proposed shoreline monitoring well network consists of 15 new monitoring wells and six existing monitoring wells as shown on Figures 3-1 and 3-2. The proposed shoreline monitoring well network is designed to be consistent with the original shoreline monitoring well network with adjustments and modifications based on evaluations of recent data and access limitations resulting from construction work at Plant 2. The original shoreline monitoring well network was based on a large number of environmental investigations that were performed in the 1990s as part of the RFI within the CMS process.

The original shoreline monitoring well network was based on extensive groundwater sampling performed during the RFI; therefore, the inclusion of DGI data and more recent data did not significantly alter the proposed locations of the replacement shoreline monitoring well network.

Current and proposed shoreline monitoring well locations are shown on Figures 3-1 and 3-2. Target screened intervals, proposed constituents, short-term objectives, and long-term objectives for each of the proposed new shoreline monitoring wells and new upgradient monitoring wells are summarized in Table 3-1. Table 3-1 also includes references to the former shoreline monitoring wells the proposed new shoreline wells are intended to replace.

The distance between proposed shoreline monitoring well Location F and Location G is larger than the general well spacing trend exhibited on Figure 3-1. This spacing is consistent with the former shoreline monitoring well network, which was based on a large dataset including data associated with the RFI as noted above. In addition, the more extensive dataset generated during the DGI was generally consistent with RFI data with regard to plume locations and constituents and did not result in the need for a shoreline monitoring well location between Location F and Location G.

No new C-Level wells are proposed for the shoreline monitoring well network. Groundwater data summarized on Figures 2-1 through 2-6 demonstrate that new C-Level shoreline monitoring wells are not warranted because data from C-Level shoreline wells demonstrate compliance with TMCLs and proposed FMCLs. In addition, the C-Level adjacent to the Shoreline has very limited discharge to the waterway due to the two orders of magnitude lower permeability of the C-Level of the aquifer relative to the A- and B-Levels.

Existing shoreline monitoring wells PL2-227A, PL2-232A, PL2-214C, and PL2-258C, which are shown on Figure 3-2, have consistent historical analytical results demonstrating non-detections or concentrations less than applicable TMCLs and proposed FMCLs. Time series graphs showing historical data for PL2-227A, PL2-232A, PL2-214C, and PL2-258C are presented in Attachment C to support Boeing's proposal to discontinue shoreline monitoring in these C-Level wells.

Existing shoreline monitoring well PL2-271A has had consistent non detects for VOCs since 2003 as shown on the time series graph presented in Attachment C. Based on these consistent historical data Boeing proposes to discontinue VOC analyses for samples from PL2-271A. Metals analyses will continue for PL2-271A based on consistent exceedences of the proposed FMCL for arsenic.

### **3.3 Upgradient Monitoring Well Network Objective**

Upgradient monitoring wells are generally located along the eastern property boundary hydraulically upgradient of former Plant 2 operations. The objective of the upgradient monitoring well network is to evaluate groundwater quality as it enters Plant 2 in case a new plume of impacted groundwater enters Plant 2 from an upgradient off-site source in the future.

Unlike the shoreline monitoring well network, which has a large historical data record that supports discontinuing C-Level groundwater monitoring at the Plant 2 shoreline, the upgradient monitoring well network is intended to monitor groundwater in all three levels of the aquifer

### **3.4 Proposed Upgradient Monitoring Well Locations**

The proposed upgradient monitoring well network is composed of 20 existing wells and three proposed wells. A new 3-level well cluster is proposed at Location Z as shown on Figure 3-1. The Location Z well cluster will consist of one A-Level well, one B-Level well, and one C-Level well installed in close proximity.

### 3.5 Monitoring Well Installation

New monitoring wells will be installed at the locations shown on Figures 3-1 and 3-2. The wells will be installed using standard hollow-stem-auger (HSA) drilling, air rotary drilling, or sonic drilling techniques as required by the well depth and geology. All borings will be sampled for geologic logging purposes following the guidance described in *Technical Procedure TP-1.2-5, Drilling, Sampling, and Logging of Soils* referenced in the Compendium (Golder 2011).

Monitoring wells will be drilled and installed to meet resource protection well construction standards found in WAC 173-160-420, "Minimum Standards for Construction and Maintenance of Wells" (Ecology 1998). The monitoring wells will be installed generally following the guidance documented in Standard Operating Procedure 4.3 in the Compendium (Golder 2011).

The wells will be constructed of 2-inch diameter, flush-threaded, Schedule 40 PVC well casing and screen in conformance with WAC 173-160-430. For A-Level wells, screen assemblies will consist of a 15-foot length of 0.01-inch (10-slot) flush-threaded, machine-slotted, Schedule 40 PVC installed from 6 to 21 feet bgs. Well screens will be set in a 20-40 CSSI, 2/12 Monterey, or equivalent silica sand filter pack that will extend from the bottom of the well screen to 1 foot above the top of the screened interval as shown on Figure 3-3. B-Level wells will be constructed in a similar manner to A-Level wells with 10-foot screen lengths installed at the depth intervals specified in Table 3-1. The C-Level well at Location Z in the upgradient monitoring well network will be constructed in a similar manner to B-Level wells with a 10-foot screen length installed at an estimated interval of 70 to 80 feet bgs, which will be adjusted to install the bottom of the screened interval immediately above the low permeability layer underlying the C-Level of the aquifer. Pre-packed well screens will be used for B- and C-Level wells to avoid installation problems in heaving formations. A well construction schematic for B- and C-Level wells is presented on Figure 3-4.

The well design for wells constructed in all levels of the aquifer includes a 0.5-foot-long flush-threaded Schedule 40 PVC sump with a flush-threaded end cap. Flush-threaded, Schedule 40 PVC well casing extends from the top of the screened interval to approximately 6 inches bgs. A 2-inch diameter, locking, watertight PVC well cap will be installed to secure the well casing. Stainless steel centralizers will be installed immediately above and below the screened interval on all wells. Additional stainless steel centralizers will be installed at 20-foot intervals on B- and C-Level wells, as shown on Figure 3-4.

Well screens will be set in 20-40 CSSI, 2/12 Monterey or equivalent silica sand filter pack that will extend from the bottom of the well screen to 1-foot above the top of the screened interval. A minimum 2-foot thick seal of hydrated bentonite chips will be installed in the annular space immediately above the sand filter pack. The remainder of the annular space will be sealed with bentonite grout or bentonite chips, hydrated in place, to within approximately 1 foot of the ground surface. The new monitoring wells will be secured in flush-completion steel protective monument set in concrete. The monuments will be raised approximately 1-inch above the existing grade with a sloping concrete pad to minimize the potential for surface water entering the monument. Well construction schematics for the A-Level and B-Level wells are presented on Figures 3-1 and 3-2, respectively.

All down-hole well components will be either factory-decontaminated and in their original sealed packaging or decontaminated to the satisfaction of the on-site Environmental Partners, Inc. (EPI) engineer before installation. All down-hole drilling equipment will be decontaminated to the satisfaction of Boeing's on-site engineer or geologist following protocols in the Compendium (Golder 2011).

### **3.6 Monitoring Well Development**

New monitoring wells will be developed by the drilling subcontractor or Boeing's environmental consultants, using a combination of surging and over-pumping. The well development process will follow the guidance documented in *Monitoring Well Development Guidelines for Superfund Project Managers* (EPA 1992). Well development will be completed by continuous pumping at a steady rate using a submersible pump, or equivalent. Well development equipment used inside a well will be either new single-use equipment, or will be decontaminated to the satisfaction of the EPI engineer by pressure washing before use and between wells.

In general, well development should be performed soon after installation but ideally not sooner than 24 hours after grouting. Well development will be performed until the well is free of sediment and the appropriate water volumes have been removed. The sediment free goal is considered achieved when turbidity measurement is 5 Nephelometric Turbidity Units (NTUs) or less. Well development may be terminated if a turbidity measurement less than 5 NTU cannot be achieved after the well development procedures described in this section have been performed. This decision will be based on real-time determinations in the field.

For wells where installation is completed without the use of water to control heave, a minimum of three volumes of standing water in the well (volume of the water inside the well screen and casing) will be removed. For wells where water was used to aid drilling, well installation, or development, three times the volume of water added to the borehole or well shall be removed along with three times the standing water volume in the well.

For instances where groundwater recharge is insufficient to produce sufficient water for development, clean potable water may be introduced into the wells to facilitate sediment removal, at the approval of Boeing's environmental consultant. If water is added to facilitate well development, an equivalent volume to the volume of water added must be removed to insure that all the water introduced into well has been removed.

Following the completion of well development, wells should be allowed to recover and stabilize for approximately one week prior to purging and sampling for laboratory analysis.

The field parameters pH, temperature, conductivity, and turbidity will be measured and recorded during well development. In addition, color changes of water before, during, and after development will be observed and recorded. Removed water from wells will be kept in closed containers pending disposal. Characterization and disposal of well development water will be completed by Boeing following the procedures noted in Section 3.9.

### **3.7 Decontamination Procedures**

Well development equipment that comes into direct contact with the inside of a monitoring well will be decontaminated between each well location using the procedures summarized in Section 3.7.1.

Drill augers and other down-hole drilling equipment components will be decontaminated prior to use and between locations by hot water pressure washing or steam cleaning using potable water. Particulate matter and surface film, if present, will be removed using a brush. Split-spoon samplers and other soil sampling devices will be decontaminated between sampling locations and intervals using the procedures summarized in Section 3.7.2.

#### **3.7.1 Aqueous Equipment Decontamination**

Non-dedicated multiple-use well development equipment will be decontaminated before use and between each well according to the steps noted below.

1. Wash in a solution of Liquinox™ (or equivalent) and potable tap water.
2. Rinse with potable tap water.
3. Rinse with reagent-grade isopropyl alcohol.
4. Rinse with distilled water.

#### **3.7.2 Nonaqueous Equipment Decontamination**

Non-dedicated multiple-use sampling equipment used for soil sampling will be decontaminated before use and between each sample according to the steps noted below.

1. Hot water pressure wash with a solution of Liquinox™ (or equivalent) and potable tap water.
2. Rinse with potable tap water.
3. Rinse with distilled water.

Note: If visual contamination persists or gross contamination is suspected, the decontamination steps used for aqueous sampling equipment will be used.

Decontamination fluids generated on-site will be retained in Department of Transportation (DOT)-approved steel drums, properly labeled and stored on-site pending characterization and disposal.

#### **3.7.3 Decontamination of Workers and Personal Protective Equipment**

It is anticipated that all work associated with monitoring well installation and well development at Plant 2 will be conducted in modified Level D protection. Requirements for upgrading to Level C protection are outlined in the Health and Safety Plan, which is provided in Attachment A.

Modified Level D protection includes the following components:

- Cotton or Tyvek™ coveralls;
- Steel-toed, steel-shank rubber boots, or waterproof leather steel toe boots;
- Safety glasses or equivalent;
- Nitrile inner and outer gloves;
- Hearing protection when appropriate (i.e., while drilling or working around generators or other loud equipment); and
- Hard hat (when working around drilling rigs, heavy equipment, or other overhead hazards).

After completion of each day's activities, sampling personnel will remove their outer gloves, remove their boots, remove their coveralls, and then remove their inner gloves. Personnel will then wash their hands and faces with soap and water before eating or leaving the site.

Inner and outer gloves and Tyvek™ coveralls will be discarded as solid waste. Cotton coveralls will be laundered as needed or replaced if excessive contamination is suspected. Hard hats will be washed when visibly dirty or as necessary.

### **3.8 Disposal of Investigation-Derived Waste**

Drill cuttings, sample spoils, and other Investigation-Derived Waste will be retained on-site in properly labeled DOT-approved steel drums pending characterization for disposal. Boeing will coordinate characterization of drum contents and disposal according to established procedures. Disposal of drill cuttings and well development water and purge water will be coordinated with Boeing.

Hazardous wastes will be managed per the requirements in "Dangerous Wastes Regulations," Chapter 173-303 WAC. Wastes will be manifested to a treatment, storage, and disposal (TSD) facility permitted to accept the material. Toxic Substance Control Act (TSCA)-regulated PCB wastes will be managed per the requirements in *Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution in Commerce and Use Prohibitions*, 40 CFR 761. TSCA-regulated PCB wastes will be shipped to facilities meeting the requirements of 40 CFR 761.

### **3.9 Health and Safety Plan**

A copy of the Well Installation and Development Health and Safety Plan is included in Attachment A.

#### 4.0 SCHEDULE AND REPORTING

The following schedule is intended to guide the CMI Phase Monitoring Well Installation process at Plant 2:

##### Schedule of CMI Phase Monitoring Well Installation Work Plan Events

Task	Due Date
1. Submit draft CMI Phase Monitoring Well Installation Work Plan to EPA for review.	Day 0
2. Comments received from EPA.	TBD
3. Incorporate comments into final plan, re-submit work plan for final review.	+7 Days after #2
4. Final plan approved by EPA.	TBD
5. Solicit bids from qualified drilling subcontractors	+14 days after #4
6. Begin mobilization for monitoring well installation	+45 Days after #5 <sup>a</sup>
7. Begin mobilization for well development	+14 Days after #6
8. Submit CMI Phase Monitoring Well Installation Completion Report.	+45 days after #7
9. First round of semiannual shoreline monitoring with new and existing wells	August 2014
10. Submit CMI Phase Semiannual Shoreline Groundwater Monitoring Report(s).	Following existing shoreline monitoring schedule
11. Subsequent rounds of semiannual shoreline monitoring	Following existing shoreline monitoring schedule (generally February and August)

Note: Days = calendar days

<sup>a</sup>Dependent on driller availability and site operations



## 5.0 REFERENCES

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## Tables

**Table 2-1**  
**Summary of cVOC Proposed FMCL Exceedences in Groundwater**  
**CMI Phase Well Installation Work Plan**  
**Boeing Plant 2, Seattle/Tukwila, Washington**

Exceedence ID <sup>a</sup>	Aquifer Level	COPCs Listed in Order of Area Impacted	Concentration Range (ug/L)	Are Exceedences Present at the POC?	Wells Proposed for Monitoring	Exceedence Area Stability Evaluation <sup>b</sup>	Carried Through to Remediation Area Evaluations?	Comments
cVOC-1	A	VC	2.5 to 31	No, but present at boundary with Jorgensen Forge	Property Boundary Wells plus Location A and Location B <sup>c</sup>	Stable area with decreasing concentrations	Yes	Probe results are generally low double digit ug/L, well results are generally single digit ug/L concentrations. The greatest VC concentration was at probe DP-SY-05.
		TCE	2.4 to 110			Shrinking area with decreasing concentrations		Three separate areas of TCE exceedences with single digit ug/L concentrations in two areas and a low triple digit TCE concentration at RCRA unit SWMU 2-91.70.
cVOC-2	B	VC	3.1 to 12	No, but present at boundary with Jorgensen Forge	Property Boundary Wells plus Location A and Location B <sup>c</sup>	Shrinking area with decreasing concentrations	Yes	Based on three detections, all were in the new B-level wells that were installed during the DGI.
cVOC-3	A	TCE	2.5 to 29	No	Location C through Location E <sup>c</sup>	Shrinking area with decreasing concentrations	No	All wells and most probes at single digit concentrations.
		PCE	7.8					Based on a single probe location.
cVOC-4	B	VC	2.8 to 15.9	No	Location C <sup>c</sup>	Stable area with decreasing concentrations	No	All other locations at single digit ug/L concentrations, most are low single digit ug/L.
cVOC-5	A	TCE	1.9 to 1,100	Yes	Location A through Location E <sup>c</sup>	Stable area with decreasing concentrations	Yes	Primarily single and double digit ug/L concentrations except inside sheetpile and at AOC 2-66.53 TCE degreaser. Greatest concentration at probe 2-66-DP-011.
		VC	2.1 to 900			High concentrations are inside sheetpile at well PL2-035A, outside sheetpile concentrations are low double digit and single digit ug/L.		
		cDCE	312 to 870			Shrinking area with decreasing concentrations		Greatest concentration is in the sample from SW Bank probe 2-66-DP-11. The remaining two locations of cDCE exceedences are inside of the 2-66 sheetpile.
cVOC-6	B	VC	2.5 and 4.7	No	Location B <sup>c</sup>	Shrinking area with decreasing concentrations	Yes	Based on two detections, at PL2-009B and PL2-008B. PL2-008B is inside of the 2-66 sheetpile.
cVOC-7	B	VC	2.4 to 3,800	No	EMF Wells plus Location H and Location G <sup>c</sup>	Shrinking area with decreasing concentrations	No, already being remediated by EMF Plume program	EMF Plume. Greatest concentration in center of plume at well PL2-435B, significantly lower at edges. More recent data from EMF program indicate lower concentrations.
		cDCE	400					EMF Plume. Single probe location with non-detections in two shallower and one deeper sample intervals. More recent data from EMF program indicate lower concentrations.
cVOC-8	C	cDCE	240 and 650	Likely anomalous	None <sup>d</sup>	Difficult to evaluate due to sparse historical C-Level data.	No, already being remediated by EMF Plume program	Two probe locations, 2-40-DP-37 and -38, both with non-detections or cDCE concentrations significantly less than its proposed FMCL in all five shallower sample intervals.
		VC	7.9					Single probe location, 2-40-DP-37, all non-detect at five shallower sample intervals, Non-detect at upgradient well PL2-442C.
cVOC-9	A	VC	13	Likely anomalous	EMF Wells plus Location G <sup>c</sup>	Shrinking area with decreasing concentrations	No, already being remediated by EMF Plume program	Two separate areas both with concentrations of 13 ug/L. Nearby well PL2-420A had a concentration of 0.3 ug/L, Non-detect for VC in shallower and deeper intervals.
		TCE	3.7 and 32	Likely anomalous		Stable area with similar concentrations		Based on two probe locations. Greatest concentration drops to 4.9 at 10 ft. bgs and non-detect in deeper samples. Nearby well PL2-420A was non-detect for TCE.
cVOC-10	A	TCE	1.5 to 18	No	Location I <sup>c</sup>	Apparent increase in plume area based on more data points during the DGI. Current concentrations are significantly lower	Yes	All single digit concentrations except at 2-40-DP-56. Historical B-Level TCE plume is gone. Area has since been excavated and remediation substrate (3DMe) placed prior to backfilling.
		VC	2.6 to 3,600	No		Stable area with similar concentrations with the exception of 2-31-DP-38		All single and double digit concentrations except at 2-31-DP-38. Historical B-Level vinyl chloride plume is gone. Area has since been excavated and remediation substrate (3DMe) placed prior to backfilling.
		cDCE	350	No		Shrinking area with decreasing concentrations		Single probe location, 2-31-DP-38. Well delineated by non-detections and cDCE at concentrations below its proposed FMCL.

**Table 2-1**  
**Summary of cVOC Proposed FMCL Exceedences in Groundwater**  
**CMI Phase Well Installation Work Plan**  
**Boeing Plant 2, Seattle/Tukwila, Washington**

Exceedence ID <sup>a</sup>	Aquifer Level	COPCs Listed in Order of Area Impacted	Concentration Range (ug/L)	Are Exceedences Present at the POC?	Wells Proposed for Monitoring	Exceedence Area Stability Evaluation <sup>b</sup>	Carried Through to Remediation Area Evaluations?	Comments
cVOC-11	A	TCE	2.9 and 3.6	Yes	Location I <sup>c</sup>	Shrinking area with decreasing concentrations	Yes	Based on two probe samples from 2-31-DP-12 and 2-31-DP-43 .
cVOC-12	A	TCE	3.1	No	None <sup>d</sup>	VOC-12 location was not historically sampled	No	Single probe location 2-10-DP-104 surrounded by non-detections.
cVOC-13	A	TCE	2.2 and 3.3	No	None <sup>d</sup>	VOC-13 location was not historically sampled	No	Two probe locations, 2-10-DP-061 and 2-10-DP-062, which are well delineated by multiple non-detections.
cVOC-14	B	TCE	8.9	No	PL2-214B <sup>e</sup>	VOC-14 location was not historically sampled	No	Single probe location 2-10-DP-090 surrounded by non-detections.
cVOC-15	A	TCE	3.4 to 58	No	PL2-214A <sup>e</sup>	Shrinking area with decreasing concentrations	Yes	Pre-IM concentrations. Generally double digit ug/L concentrations inside sheetpile and single digit ug/L concentrations outside of sheetpile.
		VC	3.9 to 91					
cVOC-16	A	TCE	6.9	Likely anomalous	None <sup>d</sup>	Stable area with similar concentrations	No	Single probe location 2-10-DP-110. Sample from nearby well PL2-232A was non-detect for TCE.
cVOC-17	A	TCE	1.5	No	None <sup>d</sup>	VOC-17 location was not historically sampled	No	Primarily single and double digit ug/L concentrations except inside sheetpile and at AOC 2-66.53 TCE degreaser
cVOC-18	A	VC	3.8 to 28,000	Yes	PL2-258A <sup>e</sup>	Shrinking area with decreasing concentrations	Yes	Pre-IM concentrations. PL2-258A (downgradient of sheetpile) was 2.2 ug/L for VC in August 2013.
		TCE	1.8 to 62,000	No				Pre-IM concentrations. PL2-258A (downgradient of sheetpile) was non-detect for TCE in August 2013.
		cDCE	930 to 150,000					Based on data from two wells, PL2-212A and PL2-218A, and one probe, 2-10-DP-038, all are inside of the 2-10 north sheetpile.
		tDCE	4,800					Based on a single probe location, 2-10-DP-038, located inside of the 2-10 north sheetpile.
cVOC-19	B	cDCE	9,800	No	PL2-258B <sup>e</sup>	Shrinking area with decreasing concentrations	Yes	Pre-IM concentration. Single well location, PL2-218B, located inside of the 2-10 north sheetpile.
		VC	3.5					

<sup>a</sup>Exceedence IDs presented on Figures 2-1 and 2-2.

<sup>b</sup>Stability evaluated by comparing DGI and more recent data to historical data as presented in the DGI work plans

<sup>c</sup>Monitoring until FMCLs are met; then evaluate if continued monitoring is warranted

<sup>d</sup>Further monitoring not warranted

<sup>e</sup>Data to be evaluated upon completion of the 2-10 Sheetpile IMs to determine if further monitoring is warranted

PCE Proposed FMCL = 5.3 ug/L

TCE TMCL = 1.4 ug/L

cDCE Proposed FMCL = 130 ug/L

tDCE Proposed FMCL = 940 ug/L

VC Proposed FMCL = 2.4 ug/L

**Table 2-2**  
**Summary of Copper and Zinc Proposed FMCL Exceedences in Groundwater**  
**CMI Phase Well Installation Work Plan**  
**Boeing Plant 2, Seattle/Tukwila, Washington**

Exceedence ID <sup>a</sup>	Aquifer Level	Constituent(s) Listed in Order of Area Impacted	Concentration Range (ug/L)	Are Exceedences Present at the POC?	Wells Proposed for Monitoring	Exceedence Area Stability Evaluation <sup>b</sup>	Carried Through to Remediation Area Evaluations?	Comments
CuZn-1	B	Zinc	382 and 717	No, but present at boundary with Jorgensen Forge	Property Boundary Wells plus Location A and Location B <sup>c</sup>	Former A-Level exceedences are gone. B-Level exceedences are likely anomalous.	Yes	Zinc results are likely anomalous. Only two detections at concentrations greater than the proposed FMCL were in two of the three new B-Level wells installed during the DGI. Well delineated by nearby B-Level wells with non-detects or detections greater than the proposed FMCL.
CuZn-2	A	Zinc	270	No, but present at boundary with Jorgensen Forge	Property Boundary Wells plus Location A and Location B <sup>c</sup>	Stable Area with decreasing concentrations	No	Based on a single probe location, 2-66-DP-33. Zinc concentration in sample from nearby downgradient well PL2-027A was 8.0 ug/L.
CuZn-3	A	Copper	8.7 to 74.6	No	Location C through Location F <sup>d</sup>	Difficult to evaluate due to sparse historical copper data in this area.	Yes	Based on one well and six probe locations. Copper concentration in sample from well PL2-325A was 8.7 ug/L.
CuZn-4	A	Zinc	583	No	None <sup>e</sup>	Result is likely anomalous	No	Based on a single probe location, 2-66-DP-35. All surrounding sampling locations have zinc concentrations in low double digit ug/L.
CuZn-5	B	Zinc	66	No	None <sup>e</sup>	Result is likely anomalous	No	Based on a single probe location, 2-60-DP-026. All surrounding sampling locations have zinc concentrations in low double digit ug/L.
CuZn-6	C	Copper	14	No	None <sup>e</sup>	Difficult to evaluate due to sparse historical C-Level data.	No	Based on a single well location, PL2-026C. Copper was non-detect in the sample from B-Level well PL2-026B.
CuZn-7	A	Zinc	110 to 12,100	Contaminated fill in Southwest Bank has been excavated	None <sup>e</sup>	Stable area with similar concentrations	No	High zinc concentration in sample from PL2-41AA, which was a piezometer constructed of galvanized (zinc coated) steel. Result is anomalous.
		Copper	8 to 42			Stable area with decreasing concentrations		All sample locations are in the Southwest Bank in contaminated fill that has been excavated.
CuZn-8	B	Copper	14	Yes	Location B <sup>c</sup>	Stable area with similar concentrations	No	Based on a single well location, PL2-043B, which was a shoreline well with consistent copper concentrations greater than the proposed FMCL.
CuZn-9	B	Zinc	146 and 542	No, but present at boundary with Jorgensen Forge	Location A and Location B <sup>c</sup>	Zinc was not historically analyzed in samples from this area.	No	Based on two piezometer locations, PP-2B-O and PP-5B-O, screened immediately outside of the 2-66 sheetpile.
CuZn-10	B and C	Copper and Zinc	9 to 12 for copper 100 to 170 for zinc	Likely anomalous	Location G and Location H <sup>c</sup>	Shrinking area with decreasing concentrations	No	Based solely on probe results. All A-Level results for wells and probes are non-detect or low. No proposed FMCL exceedences in samples from nearby wells.
CuZn-11	B	Zinc	60 to 190	Yes	Location I <sup>c</sup>	Zinc was not historically analyzed in samples from this area.	Yes	Based solely on seven probe results. Six A-Level results for probes are non-detect one at 10 ug/L. No proposed FMCL exceedences in samples from nearby wells.
CuZn-12	A	Copper	13 to 20.6	No	None <sup>e</sup>	Shrinking area with decreasing concentrations	No	Based on three probe results. Copper concentrations in samples from nearby A-Level wells are 0.6 and 1.8 ug/L.
CuZn-13	C	Copper	11	No	None <sup>e</sup>	Difficult to evaluate due to sparse historical C-Level data.	No	Based on a single well location, PL2-501C. PL2-501A sample result was 0.6 ug/L and PL2-501B sample results was non-detect for copper.
CuZn-14	C	Zinc	70	Yes	None <sup>e</sup>	Difficult to evaluate due to sparse historical C-Level data.	No	Based on a single well location, PL2-227C. A- and B-Level well sample results were both non-detect for zinc.
CuZn-15	B	Zinc	60	No	None <sup>e</sup>	Zinc was not historically analyzed in samples from this area.	No	Based on a single probe location, 2-10-DP-094. Surrounding sampling locations have zinc concentrations at non-detect to low double digit ug/L.
CuZn-16	A	Copper	15.7	No	None <sup>e</sup>	Zinc was not historically analyzed in samples from this area.	No	Based on a single probe location, 2-10-DP-099, inside of the 2-10 south sheetpile. Well delineated by non-detects and low single digit ug/L results from nearby probes and wells.

Table 2-2  
Summary of Copper and Zinc Proposed FMCL Exceedences in Groundwater  
CMI Phase Well Installation Work Plan  
Boeing Plant 2, Seattle/Tukwila, Washington

Exceedence ID <sup>a</sup>	Aquifer Level	Constituent(s) Listed in Order of Area Impacted	Concentration Range (ug/L)	Are Exceedences Present at the POC?	Wells Proposed for Monitoring	Exceedence Area Stability Evaluation <sup>b</sup>	Carried Through to Remediation Area Evaluations?	Comments
CuZn-17	A	Copper	9.1 to 17.7	No	None <sup>e</sup>	Copper was not historically analyzed in samples from this area.	No	Three areas based solely on six probe results. Well delineated by non-detects and low single digit ug/L results from nearby probes.
CuZn-18	C	Zinc	150	No	None <sup>e</sup>	Difficult to evaluate due to sparse historical C-Level data.	No	Based on a single probe location, NA-DP-46. Likely due to saline C-Level groundwater.
CuZn-19	B	Zinc	100 to 120	Yes	None <sup>e</sup>	Zinc was not historically analyzed in samples from this area.	No	Three areas each based on single probe locations. Zinc results for samples from nearby probes range from non-detect to 40 ug/L.
CuZn-20	A	Zinc	120	Yes	None <sup>e</sup>	Shrinking area and decreasing concentrations	No	Based on a single probe location, NA-DP-01. Non-detect for zinc in sample from nearby well PL2-609A.
		Copper	13.1	Yes		Difficult to evaluate due to 100 ug/L reporting limit in historical data		Based on a single probe location, NA-DP-01. Copper concentration of 0.8 ug/L in sample from nearby well PL2-609A.

<sup>a</sup>Exceedence IDs presented on Figures 2-3 and 2-4.

<sup>b</sup>Stability evaluated by comparing DGI and more recent data to historical data as presented in the DGI work plans

<sup>c</sup>Monitoring for metals will be discontinued if data from two sampling events demonstrate that the apparent CuZn exceedences were anomalous

<sup>d</sup>Statistical analyses performed after two sampling events to determine if continued CuZn monitoring is warranted

<sup>e</sup>Further monitoring not warranted  
Copper Proposed FMCL = 8.0 ug/L  
Zinc Proposed FMCL = 56 ug/L

**Table 2-3**  
**Summary of Arsenic Proposed FMCL Exceedences in Groundwater**  
**CMI Phase Well Installation Work Plan**  
**Boeing Plant 2, Seattle/Tukwila, Washington**

Exceedence ID <sup>a</sup>	Aquifer Level	Constituent(s) Listed in Order of Area Impacted	Concentration Range (ug/L)	Are Exceedences Present at the POC?	Wells Proposed for Monitoring	Exceedence Area Stability Evaluation <sup>b</sup>	Carried Through to Remediation Area Evaluations?	Comments
Arsenic-1	A	Arsenic	8.2 to 99.8	No (but present at boundary with JF)	Location A and Location B <sup>c</sup>	Stable area with similar concentrations	Yes	Elevated arsenic concentrations are co-located with VOC-1 area, which has reducing geochemical conditions.
Arsenic-2	A	Arsenic	9.6 to 18.4	No	Location C <sup>c</sup>	Difficult to evaluate due to sparse historical arsenic data.	No	Based on four scattered probe locations that are well delineated.
Arsenic-3	A	Arsenic	15.3 to 26	Yes	Location F <sup>d</sup>	Shrinking area with decreasing concentrations	No	Based on results from two probes and one well, PL2-425A. PL2-425A was a shoreline well that commonly had arsenic concentrations between 10 and 20 ug/L.
Arsenic-4	A	Arsenic	8.3 to 39.3	No	Location E through Location I <sup>c</sup>	Stable area with similar concentrations	No	Based on on many locations, mostly probes, with single digit to low double digit ug/L concentrations.
Arsenic-5	A	Arsenic	13	No	Location I <sup>c</sup>	Stable area with similar concentrations	No	Based on a single probe location, 2-31-DP-10.
Arsenic-6	A	Arsenic	12.8 to 48.8	No	PL2-214A and PL2-214B <sup>e</sup>	Arsenic was not historically analyzed in samples from this area	No	Based on three probes and one well inside of the 2-10 south sheetpile.
Arsenic-7	A	Arsenic	10.3	Yes	None <sup>f</sup>	Arsenic was not historically analyzed in samples from this area	No	Based on a single probe location, 2-10-DP-089.
Arsenic-8	A	Arsenic	14.5 and 17.6	Yes	PL2-271A <sup>d</sup>	Shrinking area with decreasing concentrations	No	Based on samples from two wells, PL2-240A and PL2-271A. PL2-271A is a shoreline well that commonly has arsenic concentrations between 15 and 20 ug/L.
Arsenic-9	A	Arsenic	8.3 to 39.3	Yes	PL2-258A <sup>d</sup>	Stable area with similar concentrations	Yes	Based on on many locations, mostly probes, with single digit to low double digit ug/L concentrations.
Arsenic-10	A	Arsenic	15.4	No	PL2-612A <sup>g</sup>	Difficult to evaluate due to sparse historical arsenic data.	No	Based on a single probe location, NA-DP-30.
Arsenic-11	A	Arsenic	1,100	No	PL2-612A <sup>g</sup>	Difficult to evaluate due to sparse historical arsenic data.	No	Based on a single probe location, NA-DP-34.

<sup>a</sup>Exceedence IDs presented on Figures 2-5 and 2-6.

<sup>b</sup>Stability evaluated by comparing DGI and more recent data to historical data as presented in the DGI work plans

<sup>c</sup>Statistical analyses performed with historical and new data after two sampling events to determine if continued arsenic monitoring is warranted

<sup>d</sup>Monitoring until FMCLs are met; then evaluate if continued monitoring is warranted

<sup>e</sup>Data to be evaluated upon completion of the 2-10 Sheetpile IMs to determine if further monitoring is warranted

<sup>f</sup>Further monitoring not warranted

<sup>g</sup>Monitoring for arsenic will be discontinued if data from two sampling events demonstrate that the apparent arsenic exceedences were anomalous  
 Arsenic Proposed FMCL = 8.0 ug/L



Table 3-1  
Plant 2 New Shoreline and Upgradient Monitoring Well Summary  
CMI Phase Monitoring Well Installation Work Plan  
Boeing Plant 2, Seattle/Tukwila, Washington

Preliminary Well Location ID	Area	Aquifer Level	Proposed Screened Interval (feet bgs)	Proposed Constituents for Long-Term Objectives <sup>a</sup>	Short-Term Objectives <sup>b</sup>	Long-Term Objectives <sup>c</sup>
Shoreline Monitoring Well Network						
Location A	Jorgensen Forge	A	6–21	VOCs, metals, PCBs	Provide data to monitor/evaluate performance of OA-11 IM and 2-66 Area chlorinated VOC remedial actions. Provide data to evaluate continued metals analyses.	Provide data to monitor elevated chlorinated and non-chlorinated VOC concentrations near the former PL2-JF01 cluster. Provide data to monitor PCBs from OA-11.
		B	50–60			
Location B	2-66 Area	A	6–21	VOCs, metals	Provide data to monitor/evaluate performance of OA-11 IM and 2-66 Area chlorinated VOC remedial actions. Provide data to evaluate continued metals analyses.	Provide data to monitor chlorinated VOC concentrations at the 2-66 sheetpile. A- and B-Level wells will be installed between the sheetpile and waterway. B-Level well will be installed deeper than the bottom of the sheetpile structure.
		B	50–60			
Location C	2-66 Area	A	6–21	VOCs, metals	Provide data to monitor/evaluate performance of future chlorinated VOC remedial actions. Provide data to evaluate continued metals analyses.	Provide data to monitor chlorinated VOC exceedences at the approximate location of the former PL2-013A/PL2-607A wells.
		B	40–50	VOCs, metals, free cyanide	Provide data to evaluate the need for continued free cyanide monitoring. Provide data to evaluate continued metals analyses.	
Location D	2-66 Area	A	6-21	VOCs, metals	Provide data to monitor/evaluate performance of future chlorinated VOC remedial actions. Provide data to evaluate continued metals analyses.	Provide data to monitor chlorinated VOC exceedences at the former PL2-015 well location.
Location E	2-66 Area	A	6–21	VOCs, metals, PCBs	Provide data to evaluate potential PCB impacts. Provide data to evaluate continued metals analyses.	Provide data to monitor historical PCB detections at PL2-036A and PL2-036AR and northern extent of chlorinated VOC plume.
Location F	2-40s Area	A	6–21	metals, PCBs	Provide data to evaluate potential PCB impacts. Provide data to evaluate continued metals analyses.	Provide data near former PL2-425A location where arsenic is commonly >FMCL. The well will also monitor PCBs downgradient of the tunnel backfilled with PCB-impacted concrete.
Location G	2-40s Area	A	6–21	VOCs, metals, PCBs	Provide data to evaluate potential PCB impacts. Provide data to evaluate continued metals analyses.	Provide data near the historical southern flank of the EMF Plume. A-Level well will also monitor PCBs downgradient of the tunnel backfilled with PCB-impacted concrete.
		B	40–50	VOCs, metals, free cyanide	Provide data to evaluate the need for continued free cyanide monitoring. Provide data to evaluate continued metals analyses.	
Location H	2-40s Area	A	6–21	VOCs, metals, PCBs	Provide data to evaluate potential PCB impacts. Provide data to evaluate continued metals analyses.	Provide data near the historical northern flank of the EMF Plume A-Level well will also monitor PCBs downgradient of the tunnel backfilled with PCB-impacted concrete.
		B	40–50	VOCs, metals	Provide data to evaluate continued metals analyses.	
Location I	2-31 Area	A	6–21	VOCs, metals, PCBs	Provide data to evaluate potential PCB impacts. Provide data to evaluate continued metals analyses.	Provide data to monitor chlorinated VOC plumes identified at and upgradient of Location I during data gaps investigation.
		B	40–50	VOCs, metals	Provide data to evaluate continued metals analyses.	
Upgradient Monitoring Well Network <sup>d</sup>						
Location Z	2-60s Area	A	6–21	VOCs, metals		Provide data to monitor groundwater entering Plant 2 along the upgradient property boundary.
		B	40–50			
		C	70–80			

Notes:

a Partial list of VOCs will be analyzed by EPA Method 8260 with tetrachloroethene by SIM. For metals, As and Cu will be analyzed for total fractions. Cd, CrVI, Ni, Se, and Zn will be analyzed for dissolved fractions. Free cyanide will be analyzed semiannually. Continued free cyanide analysis will be evalauted after two semiannual shoreline monitoring events are completed. PCBs will be analyzed annually. Continued PCB analysis will be evaluated after four annual shoreline monitoring events are completed.

b Monitoring frequency and constituents for short term objectives will be defined by remedial action work plans.

c Semiannual monitoring at shoreline well locations when monitoring for long term objectives.

bgs Below ground surface

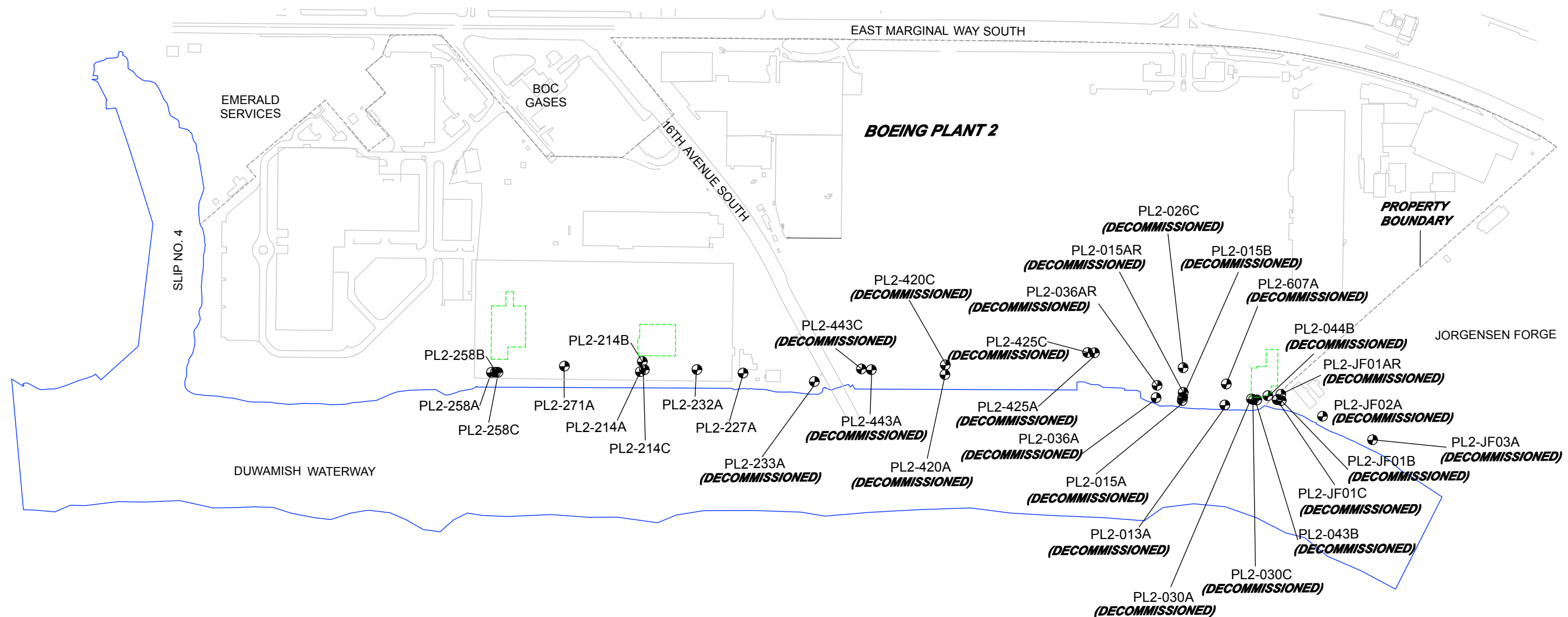
Constituents:

VOCs Volatile organic compounds, COC list with PCE by SIM

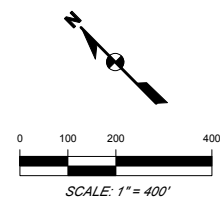
Metals As and Cu total fraction; Cd, CrVI, Ni, Se, and Zn dissolved fraction




PCBs Polychlorinated biphenyls


## Figures

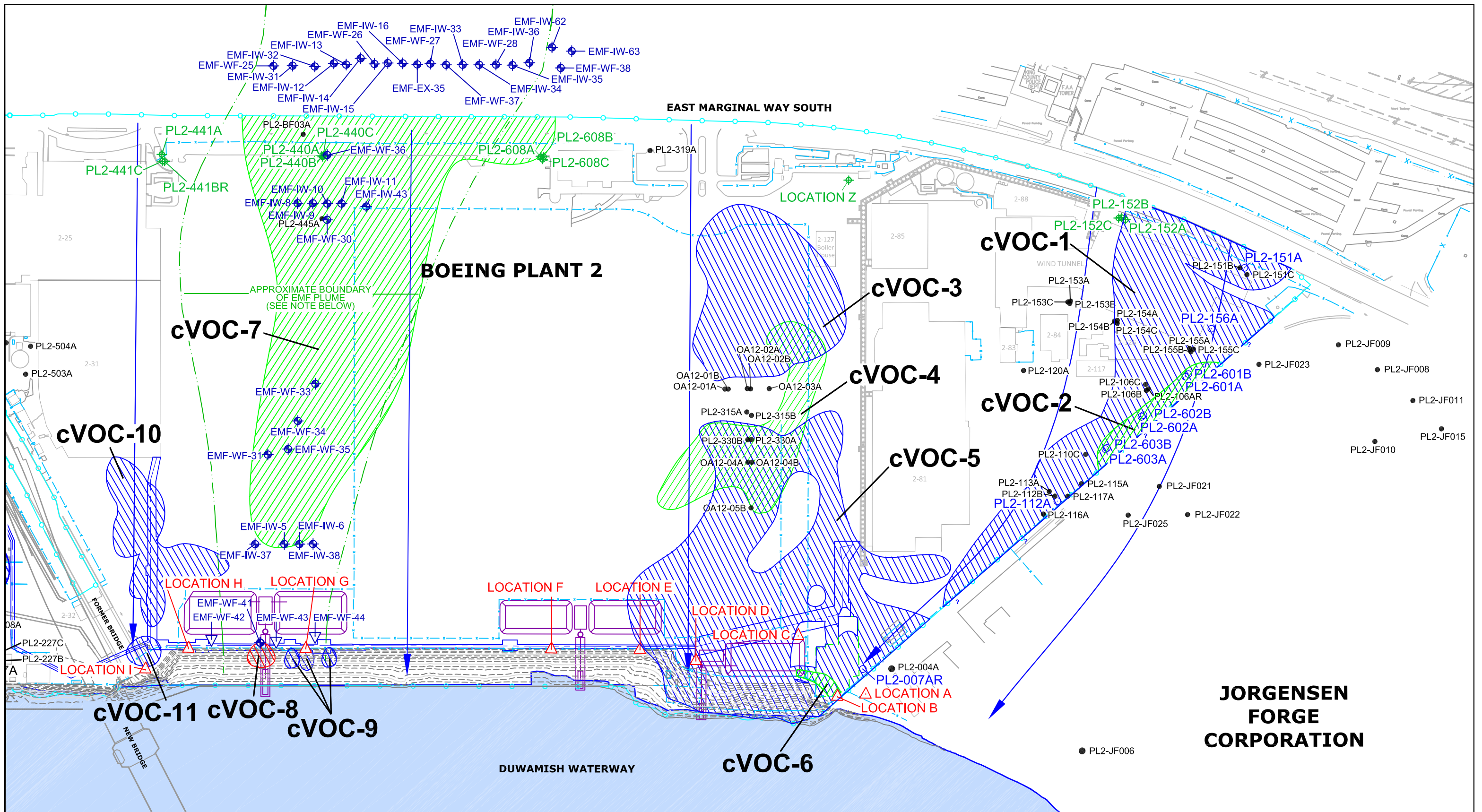


KEY:



-  SHORELINE MONITORING WELL
-  SHEETPILE STRUCTURE
-  PROPERTY BOUNDARY

<b>PROJECT</b>		WELL INSTALLATION WORK PLAN		 <b>ENVIRONMENTAL PARTNERS INC</b> <i>295 NE Gilman Boulevard, Suite 201 Issaquah, Washington 98027</i>
<b>PREPARED FOR</b>		THE BOEING COMPANY		
<b>LOCATION</b>		7725 EAST MARGINAL WAY SEATTLE/TUKWILA, WASHINGTON		<b>FIGURE 1-1</b> <b>EXISTING AND DECOMMISSIONED</b> <b>SHORELINE MONITORING WELL</b> <b>LOCATIONS</b>
<b>PROJECT</b> 17513.3	<b>DRAWN BY</b> ARM	<b>REVIEWED BY</b> DCK	<b>DATE</b> 02/03/14	



KEY:		PROPOSED NEW SHORELINE MONITORING WELL		OTHER EXISTING WELL		SHEETPILE CONTAINMENT STRUCTURE
		CURRENT SHORELINE MONITORING WELL		PROPERTY LINE AS SPECIFIED IN AGREED ORDER		STORMWATER SWALES
		CURRENT SHORELINE MONITORING WELL NOT PROPOSED FOR FUTURE SHORELINE MONITORING		FENCE LINE		A-LEVEL EXCEEDENCES
		PROPOSED UPGRADIENT MONITORING WELL		EMF PLUME - BASED ON 2001-2002 TRANSECT DATA		B-LEVEL EXCEEDENCES
		PROPOSED PROPERTY BOUNDARY MONITORING WELL		BUILDINGS		C-LEVEL EXCEEDENCES
		CURRENT EMF WELL (IW = INJECTION WF = MONITORING)		DUCT BANK		
		PROPOSED NEW EMF WELL				

THIS FIGURE WAS ORIGINALLY PRODUCED IN COLOR. REPRODUCTION IN BLACK AND WHITE MAY RESULT IN LOSS OF INFORMATION.

APPROXIMATE GROUNDWATER FLOW DIRECTION BASED ON RCRA FACILITY GROUNDWATER INVESTIGATION INTERIM REPORT, VOLUME V (WESTON, 1996) AND CONCEPTUAL HYDROLOGIC MODEL DATA GAP INVESTIGATION RESULTS (EPI, 2005)

NOTE: FOOTPRINT OF HISTORICAL EMF PLUME (2001 TIMEFRAME). REMEDIAL ACTIONS IMPLEMENTED HAVE REDUCED BOUNDARIES OF THE PLUME FROM THIS HISTORICAL FOOTPRINT.

PROJECT	BOEING PLANT 2		
PREPARED FOR	THE BOEING COMPANY		
LOCATION	BOEING PLANT 2 SEATTLE/TUKWILA, WASHINGTON		
PROJECT 17514	DRAWN BY MMH	REVIEWED BY DCK	DATE 03/14/14

**ENVIRONMENTAL PARTNERS INC.**  
295 NE Gilman Boulevard, Suite 201  
Issaquah, Washington 98027

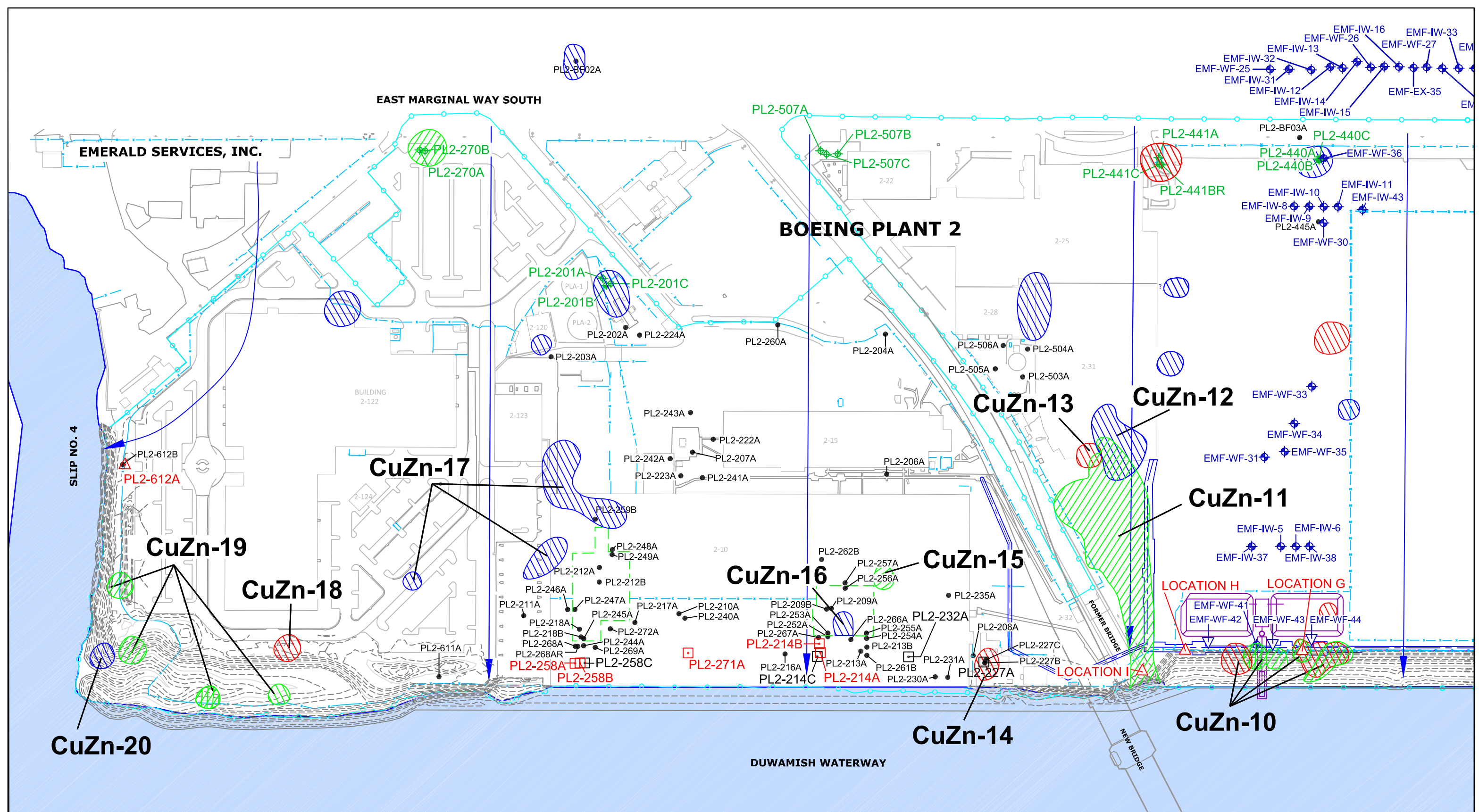
**FIGURE 2-1**  
AREAS WITH CHLORINATED VOC CONCENTRATIONS EXCEEDING PROPOSED FMCLs SOUTH PLANT 2











KEY:

▲ PROPOSED NEW SHORELINE MONITORING WELL

■ CURRENT SHORELINE MONITORING WELL

□ NOT PROPOSED FOR FUTURE SHORELINE MONITORING

◆ PROPOSED UPGRADIENT MONITORING WELL

○ PROPOSED PROPERTY BOUNDARY MONITORING WELL

⊕ CURRENT EMF WELL (IW = INJECTION WF = MONITORING)

▽ PROPOSED NEW EMF WELL

● OTHER EXISTING WELL

—○— PROPERTY LINE AS SPECIFIED IN AGREED ORDER

-x-x- FENCE LINE

□ BUILDINGS

— — — DUCT BANK

□ SHEETPILE CONTAINMENT STRUCTURE

□ STORMWATER SWALES

▨ A-LEVEL EXCEEDENCES

▧ B-LEVEL EXCEEDENCES

▩ C-LEVEL EXCEEDENCES

THIS FIGURE WAS ORIGINALLY PRODUCED IN COLOR. REPRODUCTION IN BLACK AND WHITE MAY RESULT IN LOSS OF INFORMATION.

↓ APPROXIMATE GROUNDWATER FLOW DIRECTION BASED ON RCRA FACILITY GROUNDWATER INVESTIGATION INTERIM REPORT, VOLUME V (WESTON, 1996) AND CONCEPTUAL HYDROLOGIC MODEL DATA GAP INVESTIGATION RESULTS (EPI, 2005)

PROJECT	BOEING PLANT 2		
PREPARED FOR	THE BOEING COMPANY		
LOCATION	BOEING PLANT 2 SEATTLE/TUKWILA, WASHINGTON		
PROJECT 17513	DRAWN BY MMH	REVIEWED BY DCK	DATE 03/14/14

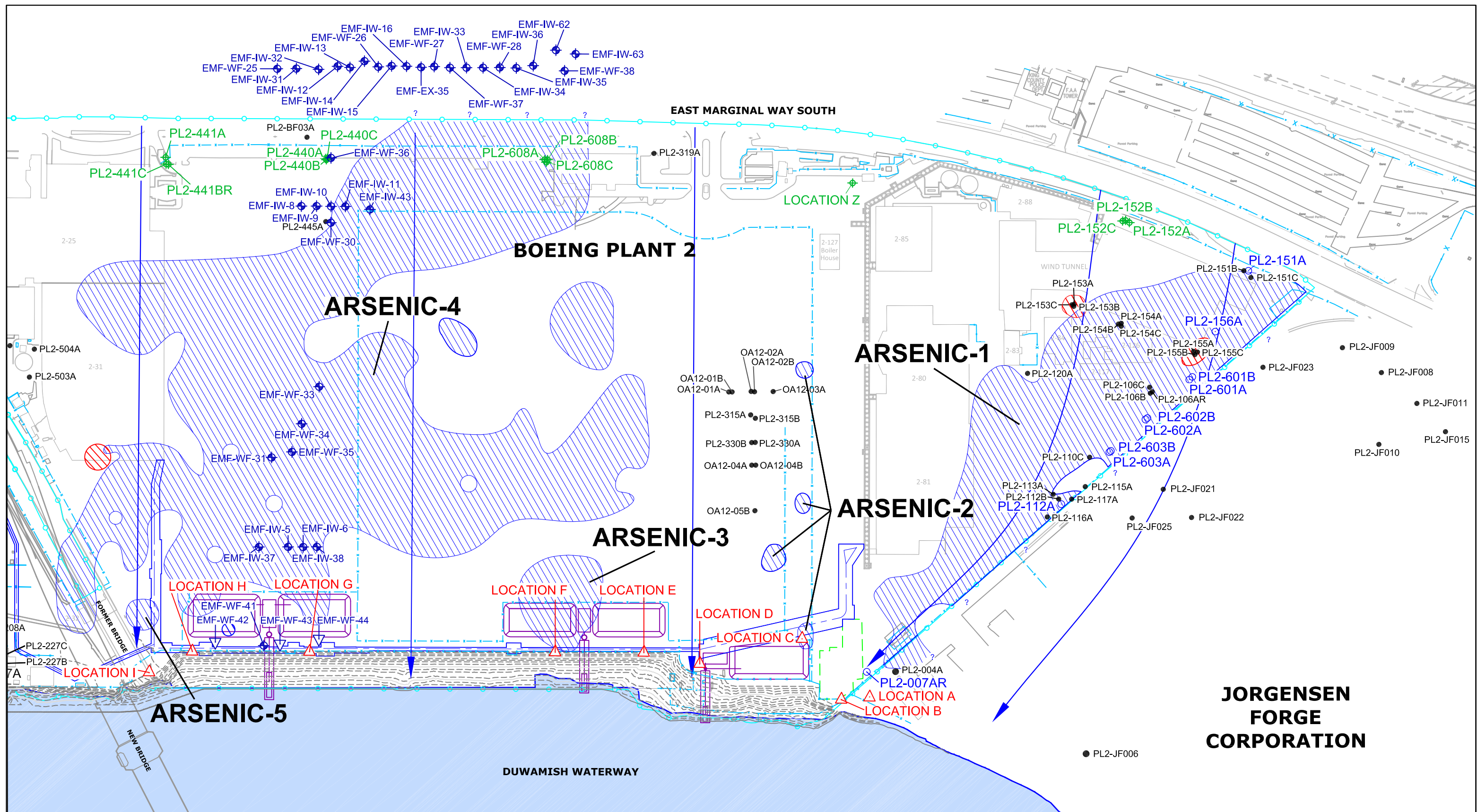
ENVIRONMENTAL PARTNERS INC

295 NE Gilman Boulevard, Suite 201  
Issaquah, Washington 98027

FIGURE 2-4

AREAS WITH COPPER AND ZINC CONCENTRATIONS EXCEEDING FMCLs NORTH PLANT 2





KEY:

▲ PROPOSED NEW SHORELINE MONITORING WELL

■ CURRENT SHORELINE MONITORING WELL

□ CURRENT SHORELINE MONITORING WELL NOT PROPOSED FOR FUTURE SHORELINE MONITORING

◆ PROPOSED UPGRADIENT MONITORING WELL

○ PROPOSED PROPERTY BOUNDARY MONITORING WELL

⊕ CURRENT EMF WELL (IW = INJECTION WF = MONITORING)

▽ PROPOSED NEW EMF WELL

● OTHER EXISTING WELL

—○— PROPERTY LINE AS SPECIFIED IN AGREED ORDER

—x—x— FENCE LINE

□ BUILDING

— — — DUCT BANK

□ SHEETPILE CONTAINMENT STRUCTURE

□ STORMWATER SWALES

▨ A-LEVEL EXCEEDENCE

▨ B-LEVEL EXCEEDENCE

▨ C-LEVEL EXCEEDENCE

THIS FIGURE WAS ORIGINALLY PRODUCED IN COLOR. REPRODUCTION IN BLACK AND WHITE MAY RESULT IN LOSS OF INFORMATION.

APPROXIMATE GROUNDWATER FLOW DIRECTION BASED ON RCRA FACILITY GROUNDWATER INVESTIGATION INTERIM REPORT, VOLUME V (WESTON, 1996) AND CONCEPTUAL HYDROLOGIC MODEL DATA GAP INVESTIGATION RESULTS (EPI, 2005)

PROJECT	BOEING PLANT 2		
PREPARED FOR	THE BOEING COMPANY		
LOCATION	BOEING PLANT 2 SEATTLE/TUKWILA, WASHINGTON		
PROJECT 17513	DRAWN BY MMH	REVIEWED BY DCK	DATE 03/17/14

**ENVIRONMENTAL PARTNERS INC**

295 NE Gilman Boulevard, Suite 201  
Issaquah, Washington 98027

FIGURE 2-5  
AREAS WITH ARSENIC CONCENTRATIONS EXCEEDING PROPOSED FMCLs SOUTH PLANT 2

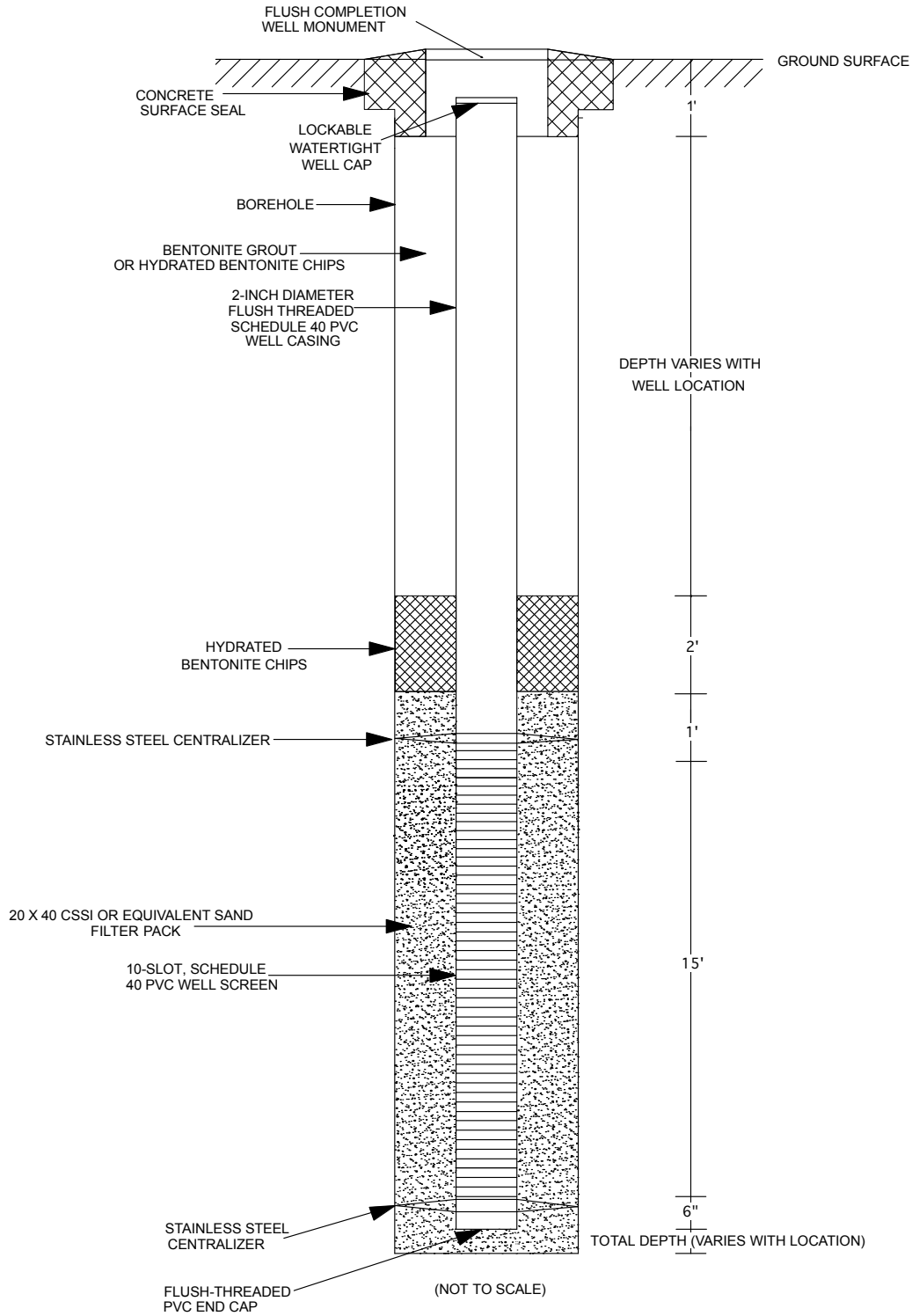







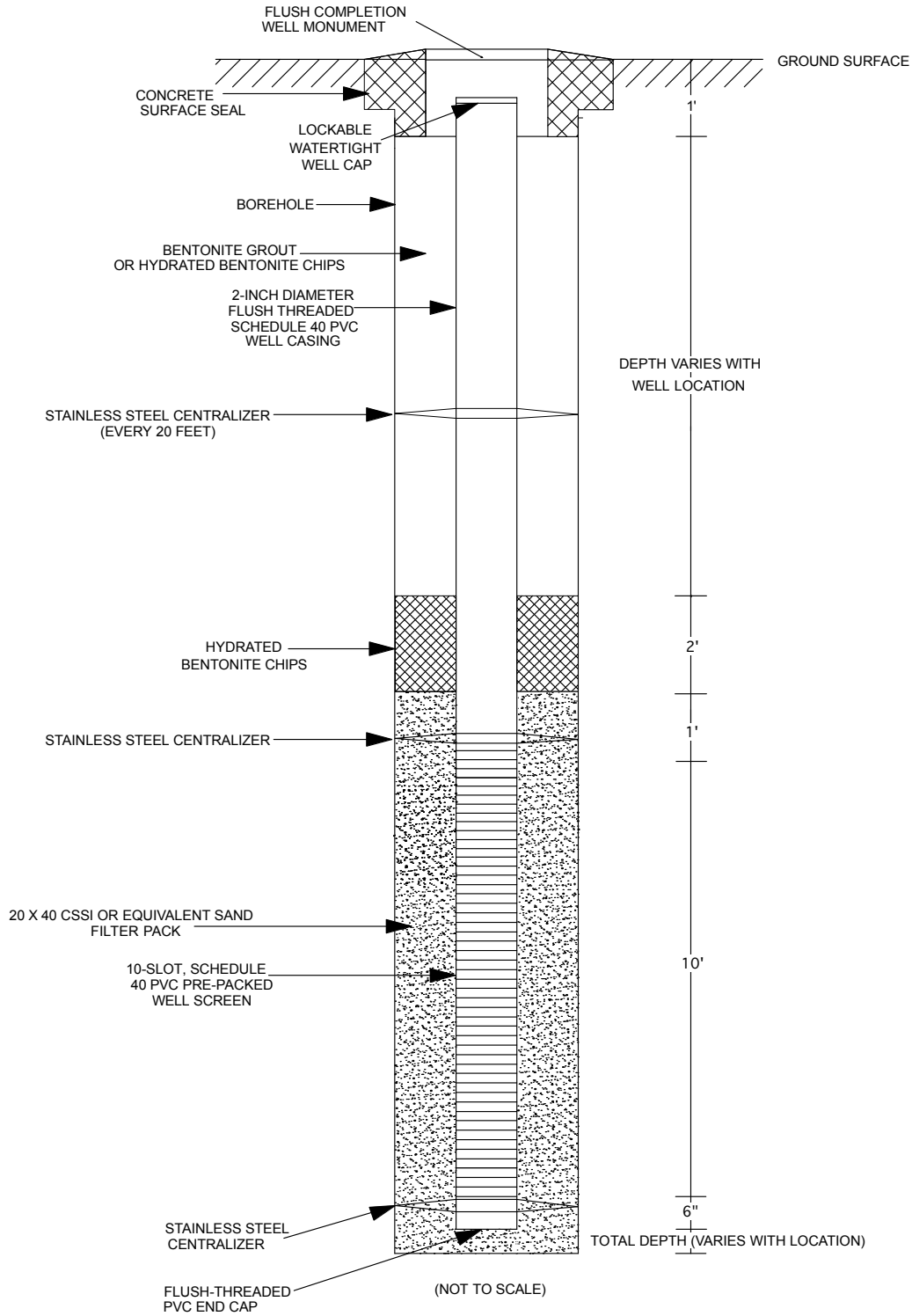







<b>REPORT</b>		WELL INSTALLATION WORK PLAN		 <b>ENVIRONMENTAL PARTNERS INC</b> <i>295 NE Gilman Boulevard, Suite 201 Issaquah, Washington 98027</i>
<b>LOCATION</b>		7725 EAST MARGINAL WAY SEATTLE/TUKWILA, WASHINGTON		
<b>PREPARED FOR</b>		THE BOEING COMPANY		FIGURE 3-3  A-LEVEL WELL CONSTRUCTION SCHEMATIC
<b>DATE</b> 02/03/14	<b>DRAWN BY</b> ARM	<b>REVIEWED BY</b> DCK	<b>PROJECT NUMBER</b> 17513	





<b>REPORT</b>		WELL INSTALLATION WORK PLAN		 <b>ENVIRONMENTAL PARTNERS INC</b> <i>295 NE Gilman Boulevard, Suite 201 Issaquah, Washington 98027</i>
<b>LOCATION</b>		7725 EAST MARGINAL WAY SEATTLE/TUKWILA, WASHINGTON		
<b>PREPARED FOR</b>		THE BOEING COMPANY		FIGURE 3-4  B- AND C-LEVEL WELL CONSTRUCTION SCHEMATIC
<b>DATE</b> 02/03/14	<b>DRAWN BY</b> ARM	<b>REVIEWED BY</b> DCK	<b>PROJECT NUMBER</b> 17513	

**Attachment A**  
**Health and Safety Plan for CMS Phase Monitoring**  
**Well Installation**

# **Attachment A: Health and Safety Plan for CMS Phase Monitoring Well Installation**

**Boeing Plant 2  
Seattle/Tukwila, Washington**

**Prepared For:**

**The Boeing Company  
P.O. Box 3707  
M/C 1W-12  
Seattle/Tukwila, WA 98124**

**March 19, 2014**

**Prepared By:**

Environmental Partners, Inc.  
295 NE Gilman Blvd. Suite 201  
Issaquah, WA 98027  
(425) 395-0010

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Douglas C. Kunkel L.G., L.H.G.  
Principal Hydrogeologist

### BOEING CONTACTS

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Will Ernst:..... (425) 891-7724 (cell)  
Mike Gleason:..... (206) 290-6576

### EPI CONTACTS

Josh Bernthal:..... (425) 241-5400 (cell) (425) 395-0024 (office)  
Kristin Addis: ..... (425) 358-0001 (cell) (425) 395-0034 (office)  
Doug Kunkel: ..... (425) 241-8170 (cell) (425) 395-0016 (office)

### GOLDER CONTACT

Ted Norton..... (206) 755-4970 (cell) (425) 885-7648 (office)

### EMERGENCY CONTACTS AND EMERGENCY INFORMATION

**\*\*Boeing Emergency Number:..... 206-655-2222 Call First\*\***

POLICE:..... 911  
FIRE:..... 911  
FIRST AID: ..... 911

**In the event of an emergency, be prepared to give the following information:**

- Location of Emergency

Site Location: ..... **The Boeing Company  
7755 East Marginal Way South  
Seattle, Washington 98108**  
Landmarks: ..... **West of Boeing Field and East of the  
Duwamish Waterway**  
Nearest Cross Street: ..... **South of 16<sup>th</sup> Ave South**

- Phone Number That You Are Calling From: ..... **LOOK ON PHONE**
- What Happened?
  - \* Type of Accident
  - \* Type(s) of Injuries
- How Many People Need Help?

### Additional Emergency Information:

- **Boeing Emergency Number: ..... 206-655-2222**
- Hospital Name: ..... **Harborview Medical Center**  
Address:..... **325 9<sup>th</sup> Avenue (Map in Figures Section)**  
City, State, Zip Code:..... **Seattle, Washington 98104**  
Phone Number: ..... **(206) 731-3000**
- Contact a Principal at Environmental Partners, Inc. after Emergency Services have been called.  
Environmental Partners, Inc. .... **(425) 395-0010 (office)**  
Thom Morin (Principal) ..... **(206) 342-6957 (cell)**  
Doug Kunkel (Principal) ..... **(425) 241-8170 (cell)**



## **1.0 PLAN OBJECTIVES AND APPLICABILITY**

This Health and Safety Plan has been written to comply with the standards prescribed by the Occupational Safety and Health Act (OSHA) and the Washington Industrial Safety and Health Act (WISHA).

The purpose of this health and safety plan is to establish protection standards and mandatory safe practices and procedures for all personnel involved with field activities associated with the installation and development of new monitoring wells at Boeing Plant 2. This plan assigns responsibilities, establishes standard operating procedures, and provides for contingencies that may occur during field activities. The plan consists of site and facility descriptions, a summary of work activities, an identification and evaluation of chemical and physical hazards, monitoring procedures, personnel responsibilities, a description of site zones, decontamination and disposal practices, emergency procedures, and administrative requirements.

Mr. Josh Bernthal of Environmental Partners, Inc. (EPI) is the designated Site Health and Safety Officer. Mr. Doug Kunkel, Mr. Ted Norton, and Ms. Kristin Addis are designated as alternate Site Health and Safety Officers. As Site Health and Safety Officer, Mr. Bernthal has total responsibility for ensuring that the provisions outlined herein adequately protect worker health and safety and that the procedures outlined by this Health and Safety Plan are properly implemented. In this capacity, Mr. Bernthal will conduct ongoing oversight and site inspections to ensure that this Health and Safety Plan remains current with potentially changing site conditions. Mr. Bernthal has the authority to make health and safety decisions that may not be specifically outlined in this plan, should site conditions warrant such actions. In the event that Mr. Bernthal leaves the site while work is in progress, an alternate Site Health and Safety Officer will be designated.

The provisions and procedures outlined by this Health and Safety Plan apply to all contractors, subcontractors, owner's representatives, oversight personnel, and any other persons involved with the field activities described herein. All such persons are required to read this Health and Safety Plan and indicate that they understand its contents by signing the Site Health and Safety Officer's copy of the Plan. In addition, all such persons are required to provide documentation of their current certification under Occupational Safety and Health Administration's (OSHA) Hazardous Waste Operations and Emergency Response (HAZWOPER) regulation, 29 CFR 1910.120. Copies of this Health and Safety Plan have been distributed to a designated representative of The Boeing Company.

It should be noted that this Health and Safety Plan is based on information that was available as of the date indicated on the Title Page. It is possible that additional hazards that are not specifically addressed by this Health and Safety Plan may exist at the work-site, or may be created as a result of on-site activities. It is EPI's firm belief that active participation in health and safety procedures and acute awareness of on-site conditions by all site workers is crucial to the health and safety of everyone involved. If you identify a site condition that is not addressed by this Health and Safety Plan, or if you have any questions or concerns about site conditions or this Plan, immediately notify the Site Health and Safety Officer.

## **2.0 BACKGROUND INFORMATION**

The work site is located at: The Boeing Company, Plant 2  
7755 East Marginal Way South  
Seattle, Washington 98108

### **2.1 Site History**

During 2010 and continuing through 2013 Boeing decommissioned numerous monitoring wells, including wells that were part of the shoreline monitoring well network. The wells that were decommissioned were within the footprints of construction projects or at locations where they would be damaged by demolition and construction activities that began during the summer in 2010 and continued through 2013.

The well decommissioning work was performed under an interim measure work plan, which was approved by EPA on June 8, 2010. As part of the well decommissioning work Boeing decommissioned shoreline monitoring wells PL2-013A, PL2-607A, PL2-015A, PL2-015AR, PL2-015B, PL2-026C, PL2-030A, PL2-030C, PL2-036A, PL2-036AR, PL2-043B, PL2-044B, PL2-233A, PL2-420A, PL2-420C, PL2-425A, PL2-425C, PL2-443A, PL2-443C, PL2-JF01AR, PL2-JF01B, PL2-JF01C, and PL2-JF02A. In addition, shoreline well PL2-JF03A, formerly located on the Jorgensen Forge property, was decommissioned in 2006 after it was hit by a forklift and was damaged beyond repair.

The locations, screened intervals, and constituent lists for the original shoreline monitoring well network were based on a large number of environmental investigations, including the Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI). Since then, many environmental investigations, including a comprehensive data gap investigation (DGI), and ongoing shoreline well monitoring, have been performed at Plant 2. The soil and groundwater data obtained through these investigations have enhanced understanding of the locations, concentrations, and aerial extent and depth of impacted groundwater at Plant 2. These historical data, and more recent data when appropriate, were used to select locations, screened intervals, and constituent lists for the replacement shoreline monitoring well network, which is the main emphasis of this work plan. Under this work plan, Boeing will also install a 3-level cluster of monitoring wells near the eastern property boundary to complete the proposed upgradient monitoring well network.

This Health and Safety Plan relates specifically to monitoring well installation and development work that will be performed at the Facility. Figure 2-1 shows the proposed monitoring well locations and outlines of various landmarks that are present at Plant 2.

### **2.2 Scope of Work**

The on-site work activities that are covered by this Health and Safety Plan are:

- Task 1 – Concrete coring
- Task 2 – Monitoring well installation
- Task 3 – Monitoring well development

### 3.0 HAZARD EVALUATION AND RISK ANALYSIS

In general, there are three broad hazard categories that may be encountered during site work; Chemical Exposure Hazards, Fire/Explosion Hazards, and Physical Hazards. Subsections 3.1 through 3.3 summarize specific hazards falling within each of these broad categories.

#### 3.1 Chemical Exposure Hazards

Table 1 presents chemical-specific data regarding permissible exposure levels (PELs), likely pathways of exposure, target organs that will likely be affected by exposure, and likely symptoms of exposure for hazardous substances that are potentially present at the site. Table 1 data were compiled from the NIOSH Pocket Guide to Chemical Hazards, September 2007 edition. It should be noted that the PELs are the regulated limits; Recommended Exposure Limits (RELs) by NIOSH are guidance but are listed as a reference.

**Table 1: Chemical-Specific Exposure Data**

Chemical Name	REL*	PEL*	IDLH*	Exposure Route	Target Organs	Symptoms
PCBs (Total)	NE	TWA 0.5 mg/m <sup>3</sup>		Ingestion, inhalation, skin absorption.	Skin, liver, reproductive system	Irritation eyes; chloracne; liver damage; reproductive effects
Arsenic (elemental) [CAS 7440-38-2]	0.002 mg/m <sup>3</sup>	0.010 mg/m <sup>3</sup>	5 mg/m <sup>3</sup>	Inhalation; ingestion; skin/eye contact	Skin; respiratory system; kidneys; central nervous system; liver; GI tract; respiratory system	Irritation of skin; dermatitis; respiratory distress; diarrhea; kidney damage; muscle tremor; convulsions; GI tract; reproductive effects; lower damage
Copper (dust)	1 mg/m <sup>3</sup>	1 mg/m <sup>3</sup>	100 mg/m <sup>3</sup>	Inhalation, ingestion, contact	Eyes, skin, respiratory system, liver, kidneys.	Irritation to eyes, nose, pharynx, nasal septum perforation, metallic taste, dermatitis, lung, liver, and kidney damage, anemia
Mercury Compounds	Ceiling 0.1 mg/m <sup>3</sup> (skin)	0.1 mg/m <sup>3</sup>	10 mg/m <sup>3</sup>	Inhalation; absorption; ingestion; skin/eye contact	Eyes; skin; respiratory system; central nervous system; kidneys.	Irritation to eyes and skin, cough, chest pain, dyspnea, bronchitis, Pneumonia, tremor, insomnia, irritability, indecision, headaches, lassitude, stomatitis, salivation, GI disturbance, anorexia, low weight, proteinuria
Tetrachloroethene		100 ppm	150 ppm	Inhalation; absorption; ingestion; skin/eye contact	Eyes, skin, respiratory system, heart, liver, kidneys, central nervous system	Irritation to eyes, skin; headache, visual disturbance, lassitude, dizziness, tremor, drowsiness, nausea, vomiting; dermatitis, cardiac arrhythmias, paresthesia, liver injury
Trichloroethene	25 ppm	100 ppm	1000 ppm	Inhalation; ingestion; absorption; skin/eye contact	Eyes, skin, respiratory system, heart, liver, kidneys, central nervous system	Irritation to eyes, skin; headache, visual disturbance, lassitude, dizziness, tremor, drowsiness, nausea, vomiting; dermatitis, cardiac arrhythmias, paresthesia, liver injury
Cis-1,2- Dichloroethene	200 ppm	200 ppm	1000 ppm	Inhalation, ingestion, contact	Eyes, respiratory system, central nervous system	Irritation to eyes, respiratory system, central nervous system depression
Vinyl Chloride	Lowest possible exposure	0.5 ppm (29 CFR 1910.101 7)	Not determin ed	Inhalation; skin/eye contact	Liver, central nervous system, blood, respiratory system, lymphatic system	Lassitude; abdominal pain; GI bleeding; enlarged liver; pallor or cyanosis of extremities; liquid; frostbite

REL – Recommended Exposure Limit (NIOSH) Pocket Guide to Chemical Hazards, September 2007

PEL – Permissible Exposure Limit (OSHA) Table Z-1 in 29 CFR 1910.1000  
IDLH – Immediately Dangerous to Life or Health  
NE – None established

### 3.2 Fire and Explosion Hazards

It is highly unlikely that vapors from the contaminated soils will be present at levels sufficient to create an explosion and/or fire hazard. It should be noted, however, that the 1996 Emergency Response Guidebook, published by the United States Department of Transportation, identifies the following explosion and/or fire hazards associated with fuel vapors.

- Flammable/combustible material
- May be ignited by heat, sparks or flames
- Vapors may travel to a source of ignition and flash back
- Containers may explode in heat or fire
- Vapor explosion hazards indoors, outdoors or in sewers
- Run-off to sewers may cause a fire or explosion hazard

### 3.3 Physical Hazards

Following is a summary of a variety of physical hazards that may be encountered on the job-site. For convenience, these hazards have been categorized into several general groupings and suggested preventative measures are also included.

Category	Cause	Prevention
Head Hazards	Falling and/or sharp objects, bumping hazards.	All personnel will wear hard hats at times when overhead hazards are present.
Foot/Ankle Hazards	Sharp objects, dropped objects, uneven and/or slippery surfaces, chemical exposure	Chemical resistant, steel-toed boots must be worn at all times on-site.
Eye Hazards	Sharp objects, poor lighting, bright lights (welding equipment), exposure due to splashes	Safety glasses/face shields will be worn when appropriate. Shaded welding protection will be worn when appropriate.
Electrical Hazards	Underground utilities, overhead utilities	Locator service mark-outs, visual inspections of work area prior to starting work.
Mechanical Hazards	Heavy equipment such as drill rigs, service trucks, excavation equipment, saws, drills, etc.	Competent operators, backup alarms, regular maintenance, daily mechanical checks, proper guards.
Noise Hazards	Machinery creating >85 decibels TWA, >115 decibels continuous noise, or peak at >140 decibels	Wear earplugs or protective earmuffs when appropriate.
Fall Hazards	Elevated and/or slippery or uneven surfaces. Trips caused by poor "housekeeping" practices	Care should be used to avoid such accidents and to maintain good "housekeeping". Fall protection devices must be used when work proceeds on elevated surfaces.
Lifting Hazards	Injury due to improper lifting techniques, overreaching/overextending, heavy objects	Use proper lifting techniques, mechanical devices where appropriate.
Lighting Accidents	Due to improper illumination	Work will proceed during daylight hours only, or under sufficient artificial illumination.
Traffic Hazards	Some wells are located in active parking areas or access roads.	Work during off-peak hours. Use traffic cones, signs, and safety tape to warn motorists of work area. Any vehicle in work zone should turn on four-way flashers or roof-mounted amber lights. Wear orange safety vest, face traffic when possible, be aware of surroundings, and look both ways before walking.

#### **4.0 AIR/SITE MONITORING**

The following section describes monitoring techniques and equipment that are to be used during site work. The Site Health and Safety Officer, or a designated alternate, is responsible for performing all monitoring activities. Air and site monitoring will be used to determine the level of protection that is required for work to proceed safely.

##### **4.1 Air Monitoring**

Air monitoring will be performed to ensure that personnel are not exposed to harmful vapor concentrations in excess of PELs. This monitoring will also be used to identify any increases in airborne contaminant concentrations during work activities.

##### **4.1.1 Air Monitoring Equipment**

All monitoring equipment used during this project will be inspected and calibrated at least daily to ensure that it is in proper working condition. If any piece of required monitoring equipment does not work properly, work in the monitored area will stop and will not continue until the monitoring equipment is repaired.

PID: Because exposure to airborne contaminants is expected to be limited to volatile organic compounds (VOCs), air monitoring will be performed with a Photoionization Detector (PID). The range of contaminants expected to be present require that the PID be equipped with a 10.2 eV detector lamp. The most likely airborne constituents include TCE and vinyl chloride. Because the site action level for VOCs is set at 5 ppm and the PEL for vinyl chloride is 1.0 ppm it will be important to determine if the total VOCs detected in the air contain greater than 1.0 ppm vinyl chloride. This determination will be made using colorimetric tubes specifically designed to detect and quantify vinyl chloride concentrations in the air. If total VOC concentrations are greater than 1.0 ppm over background (sustained for >15 minutes) EPI or Golder field personnel will use colorimetric tubes to evaluate the vinyl chloride concentration. If vinyl chloride is detected at concentrations greater than 1.0 ppm in the breathing zone engineering controls will be implemented and the breathing zone will be re-tested. Work will not be resumed until vinyl chloride concentrations are below 1.0 ppm in the breathing zone.

The PID must be "zeroed" and calibrated according to manufacturer instructions at least daily. Initial monitoring will be performed every 5 minutes, unless odors, tastes, or a PID response indicate the presence of airborne contaminants above background levels. If airborne contaminants are detected, air monitoring will be performed continuously. If airborne contaminants are not detected in the first 30 minutes of monitoring then monitoring intervals can be increased to every 15 minutes.

#### 4.1.2 Action Levels

##### Photoionization Detector (PID)

Response	Length of Time	Protective Measure
< 5 ppm	15 minute average	Level D PPE
>1 ppm over background	15 minute average	Evaluate vinyl chloride concentrations relative to total VOCs using colorimetric tubes
5-25 ppm	15 minute average	Allow work area to vent. If persistent: Level C
25-50 ppm	Sustained over 15 minutes	Level C PPE, High-efficiency organic vapor cartridges in respirator
> 50 ppm	One (1) minute average	Vacate work area, notify Site Health and Safety Officer or designated alternate immediately

It should be noted that these action levels are based on the presence of benzene and vinyl chloride which have the lowest PELs and STELs of the compounds listed in Table 1.

#### 4.2 Site Monitoring

The Site Health and Safety Officer will visually inspect the work-site at least daily to identify whether any new potential hazards have arisen. If and whenever possible, immediate measures will be taken to eliminate, or reduce the risks associated with these hazards.

#### 4.3 Personal Protective Equipment (PPE)

It is anticipated that all field tasks will be performed in Level D PPE unless additional PPE is required because of task or site-specific upgrades. Level D PPE includes the following items:

- Nitrile inner and outer gloves
- Steel toe, steel shank work boots. Neoprene steel-toe, steel shank boots for ground water sampling and for drilling below the water table
- Hearing protection during drilling activities
- Hard hat during drilling activities and excavation work
- Safety glasses
- Cotton or Tyvek coveralls
- Orange safety vest when working in parking lots or roadways

Level C PPE includes all Level D items plus the following:

- Full-face respirator equipped with organic vapor/HEPA combination cartridges (full face respirator replaces safety glasses for eye protection),
- Tyvek or Saranex coveralls
- Neoprene steel-toe, steel shank boots

## **5.0 HAZARD ANALYSIS BY TASK**

The following section identifies potential hazards associated with each task listed in Section 2.2 of this Health and Safety Plan. Unless otherwise noted, work will begin and proceed in Level D personal protective equipment. The Site Health and Safety Officer will upgrade the level of protection accordingly whenever warranted by conditions present in the work area.

- Task 1 - Concrete coring: Potential exposure to concrete dust, head, foot/ankle, and eye hazards; electrical and mechanical hazards; noise, fall, lifting.
- Task 2 - Monitoring Well Drilling and Installation: Exposure to volatile organic compounds in soil, air and groundwater; head, foot/ankle, and eye hazards; electrical and mechanical hazards; noise, fall, lifting, and overhead hazards.
- Task 3 - Monitoring Well Development: Exposure to volatile organic compounds in soil, air and groundwater; head, foot/ankle, and eye hazards; electrical and mechanical hazards; noise, fall, lifting, and overhead hazards.

**Personnel:** EPI – Josh Bernthal, Doug Kunkel, Mary Holder, Monica Mogg  
Golder - Ted Norton, Jill Lamberts, Michael Lumpkin

### **Contractor Names:**

Cascade Drilling, Holocene Drilling, or other drilling company for drilling, well installation, and well development.  
APS or other utility locating company for subsurface utility locating  
Cascade Concrete Sawing or other company for concrete coring  
Traffic Control Services for flagging/managing traffic (if required)

## **6.0 SITE CONTROL**

The following section identifies several activity zones located on the work-site. It should be noted that access to some of these activity zones (i.e. the exclusion zone) will be restricted to designated personnel.

The work site is secured. Pedestrians and other unauthorized personnel will not be allowed within the exclusion zone.

### **6.1 Contamination Reduction Zone**

A specified area will be established for the decontamination of sampling equipment and personnel. Because the location of this zone will change during the course of the investigation the site safety office will discuss the contaminant reduction zone location during each daily safety briefing.

#### **6.1.1 Decontamination Procedures - Equipment**

Split-spoon samplers and other down-hole equipment will be decontaminated with a solution of Liquinox™ or equivalent soap and potable water and rinsed with distilled or deionized water prior to

collecting soil samples for analysis as noted in the work plan. An alternative method of decontamination is to hot water pressure wash all down-hole sampling and drilling equipment. All decontamination wastes will be containerized, properly marked, and left in a designated on-site location for disposition by Boeing.

#### **6.1.2 Decontamination Procedures - Personnel**

All personal protective clothing (i.e. nitrile gloves) and other miscellaneous waste will be bagged in opaque garbage bags and will be discarded in the trash. All on-site personnel must, at a minimum, wash their face and hands before eating, before break periods, and prior to leaving the site.

### **7.0 EMERGENCY RESPONSE AND CONTINGENCY PLAN**

The purpose of this section is to define procedures and specific responsibilities that are to be followed in the event that a chemical spill or release, a fire or explosion, or an accident involving injuries occurs. The Site Health and Safety Officer, or a designated alternate, will determine when emergency and/or regulatory agencies should be contacted and which agencies are appropriate to contact. It should be noted that if injuries have occurred, all site workers have the responsibility to secure medical help for the affected worker(s). Medical emergency help can be contacted at the appropriate phone numbers listed on the pink pages of this Plan. A route map to the nearest hospital (Harborview Medical Center) is included with the attached figures.

In all emergency situations, the rule is SAFETY FIRST! Do not, under any circumstances, endanger yourself or others to rescue a fallen co-worker. It is far better to rescue one person after proper safety measures for the rescue have been carefully considered, than to have to rescue additional people whose haste to help out got them in trouble.

In case of injury: call 206-655-2222 first, then 911 if necessary.

### **8.0 ADMINISTRATIVE**

#### **8.1 Medical Surveillance**

Personnel involved with field activities must be covered under their employer's medical surveillance program that includes annual physical examinations and certification to wear respiratory protective equipment. These medical monitoring programs must be in compliance with all applicable worker health and safety regulations.

#### **8.2 Record Keeping**

The Site Health and Safety Officer, or a designated alternate, will be responsible for keeping daily logs of workers and visitors present at the work site, attendance lists of personnel present at site health and safety meetings, accident reports, air monitoring results, and signatures of all personnel who have read this Health and Safety Plan.



[illegible]

**Figure**



**Attachment B**  
**Data Gap Investigation Field Parameter**  
**Summary Tables**

**Table 1: Summary of Data Gap Investigation Groundwater Sampling Field Parameter Results  
South Yard Area, Boeing Plant 2**

Well Name	Date	Gallons Purged	pH	Conductivity	Turbidity (NTU)	DO (mg/L)	Temp. (C)	ORP (mV)	Appearance
SY-DP-05	3/7/05	1.7	6.79	64.00 ms/m	130.00	1.60	15.0	-130	Clear
SY-DP-04	3/7/05	1.7	6.83	0.13 s/cm	9.93	0.80	15.7	-157	Clear
SY-DP-03	3/7/05	2.2	7.00	56.00 ms/m	47.30	0.50	15.8	-161	Clear
SY-DP-02	3/7/05	2.0	6.86	79.00 ms/m	8.65	0.60	15.8	-124	Clear
SY-DP-06	3/7/05	1.3	6.69	73.00 ms/m	6.37	0.90	16.7	-70	Clear
SY-DP-08	3/7/05	2.2	6.68	70.00 ms/m	86.40	0.80	16.7	-74	Cloudy
SY-DP-07	3/7/05	1.4	6.83	96.00 ms/m	19.90	0.90	15.9	-79	Clear
SY-DP-01	3/8/05	2.8	7.01	0.10 s/cm	49.40	0.70	15.5	-122	Clear
SY-DP-09	3/8/05	2.8	6.78	89.00 ms/m	18.50	0.70	17.1	-83	Clear
SY-DP-10	3/8/05	0.4	6.43	0.13 s/cm	26.00	3.00	18.3	4	Clear
SY-DP-11	3/8/05	1.5	6.92	0.14 s/cm	6.24	1.40	17.8	-51	Clear
SY-DP-12	3/8/05	2.5	6.69	0.12 s/cm	30.80	1.50	17.5	-45	Clear
PL2-153C	3/9/05	1.0	7.09	1.40 s/cm	2.47	0.15	16.1	-200	Clear
PL2-153B	3/9/05	1.5	7.12	1.10 s/cm	0.75	0.19	15.9	-188	Clear
PL2-153A	3/17/05	2.2	6.80	74.50 ms/m	5.20	0.15	15.3	-101	Clear
PL2-120A	3/10/05	8.1	6.83	65.00 ms/m	7.03	0.17	15.6	-89	Clear
PL2-154A	3/10/05	2.9	6.87	65.00 ms/m	0.80	0.17	15.6	-170	Clear
PL2-154B	3/10/05	2.2	6.89	0.38 s/cm	2.59	0.15	16.0	-162	Clear
PL2-154C	3/10/05	2.5	7.26	2.81 s/cm	2.81	0.12	16.2	-210	Clear
PL2-156A	3/11/05	1.3	6.74	70.00 ms/m	6.15	0.15	15.9	-182	Clear
PL2-151C	3/11/05	2.6	7.22	1.90 s/cm	8.12	0.24	15.3	-216	Clear
PL2-151B	3/11/05	2.0	6.53	0.22 s/cm	1.94	0.31	15.2	-115	Clear
PL2-151A	3/11/05	3.5	5.98	32.00 ms/m	14.60	0.20	14.6	-34	Clear
PL2-106A	3/14/05	2.5	6.78	91.00 ms/m	9.60	0.11	15.6	-119	Clear
PL2-106B	3/14/05	4.7	6.64	0.11 s/cm	7.35	0.18	16.0	-108	Clear
PL2-106C	3/14/05	2.6	7.41	3.00 s/cm	11.40	0.09	16.4	-219	Clear
PL2-155A	3/14/05	2.6	6.83	59.00 ms/m	9.80	0.06	17.2	-151	Clear
PL2-155B	3/14/05	2.4	6.67	0.22 s/cm	11.60	0.10	17.7	-98	Clear
PL2-155C	3/14/05	3.0	7.42	2.90 s/cm	24.30	0.06	17.0	-215	Clear
PL2-601A	3/14/05	2.3	6.62	53.00 ms/m	2.41	0.10	16.6	-55	Clear
PL2-152A	3/15/05	3.5	7.06	97.00 ms/m	4.66	0.11	12.6	65	Clear
PL2-152B	3/15/05	2.5	7.02	0.31 s/cm	2.86	0.31	13.9	-95	Clear
PL2-152C	3/15/05	1.5	7.59	1.60 s/cm	8.83	0.11	13.9	-186	Clear
PL2-601B	3/15/05	2.4	6.95	0.24 s/cm	8.90	0.20	15.7	-77	Clear
PL2-602A	3/15/05	2.4	6.60	0.10 s/cm	8.60	0.09	15.6	-53	Clear
PL2-602B	3/15/05	2.0	7.07	82.00 ms/m	10.00	0.13	16.0	-64	Clear
PL2-603A	3/15/05	2.2	6.83	0.11 s/cm	5.61	0.12	15.4	-28	Clear
PL2-603B	3/15/05	2.5	6.97	0.12 s/cm	7.71	0.13	15.5	5	Clear
PL2-115A	3/15/05	0.9	5.90	20.00 ms/m	12.00	2.00	14.4	66	Clear
PL2-110C	3/16/05	1.7	7.28	2.21 s/cm	7.01	0.20	14.7	-158	Clear
PL2-117A	3/16/05	0.7	6.28	55.30 ms/m	158.00	2.06	11.8	-50	Clear
PL2-112A	3/16/05	1.6	6.71	0.10 s/cm	7.12	0.14	13.6	-79	Clear
PL2-112B	3/16/05	2.1	6.76	0.12 s/cm	13.40	0.07	13.5	-44	Clear
PL2-113A	3/16/05	1.5	6.57	0.12 s/cm	7.20	0.43	13.9	-37	Clear
PL2-116A	3/16/05	2.4	6.57	90.60 ms/m	8.60	0.36	12.8	-36	Clear

**Table 2: Summary of Data Gap Investigation Groundwater Sampling Field Parameter Results  
2-60s Area, Boeing Plant 2**

Well or Probe Location	Date	Gallons Purged	pH	Cond. (mS/cm)	Turbidity (NTU)	DO (mg/L)	Temp. (°C)	ORP (mV)	Appearance
2-60-DP-01-12	8/4/05	3.3	6.36	390	51.4	0.33	15.4	21	Moderately Turbid
2-60-DP-01-42	8/4/05	2.4	6.54	83	459	0.4	21.3	-133	Moderately Turbid
2-60-DP-02-12	8/4/05	2	6.16	298	10.6	1.63	20.6	15	Clear
2-60-DP-02-42	8/4/05	4	6.33	91	>1000	2.37	21.1	-123	Turbid
2-60-DP-03-12	8/5/05	1.9	6.06	251	13.6	3.2	16.9	106	Clear
2-60-DP-03-42	8/5/05	2.6	6.89	132	791	1.62	16.9	-141	Turbid
2-60-DP-04-12	8/8/05	1.5	5.61	32	5.48	4.42	20.4	51	Clear
2-60-DP-04-42	8/8/05	5.1	5.82	168	43.7	2.47	18.7	-38	Clear
2-60-DP-05-12	8/8/05	1.2	5.63	103	5.5	4.43	21.8	68	Clear
2-60-DP-05-42	8/9/05	6.7	6.27	131	35.3	1.53	16	-76	Clear
2-60-DP-06-12	8/9/05	2.5	5.64	92	4.83	2.44	17.3	55	Clear
2-60-DP-06-42	8/9/05	11.4	6.36	160	35	1.24	18.6	-104	Clear
2-60-DP-07-12	8/9/05	2.2	5.54	151	3.33	3.33	17.5	92	Clear
2-60-DP-07-42	8/10/05	8.7	6.45	171	389	1.3	16.3	-100	Turbid
2-60-DP-08-12	8/10/05	1.8	6.41	55	2.88	5.02	16.9	-82	Clear
2-60-DP-08-42	8/10/05	5.2	6.60	152	32.5	0.94	16.1	-99	Clear
2-60-DP-09-12	8/10/05	3.4	6.11	63	6.59	1.6	17.1	-42	Clear
2-60-DP-09-42	8/10/05	9.5	6.80	337	53.7	1.35	16.9	-138	Clear
2-60-DP-10-12	8/11/05	0.38	6.18	214	3.19	4.12	17.5	126	Clear
2-60-DP-10-42	8/11/05	10.5	6.64	140	305	1.48	16.9	-92	Turbid
2-60-DP-11-12	8/12/05	2.7	6.00	267	24.2	1.93	17.3	139	Clear
2-60-DP-11-42	8/12/05	5.7	6.29	84	36.8	2.39	17.2	-47	Clear
2-60-DP-12-12	8/11/05	0.8	6.15	153	6.47	4.81	18.2	59	Clear
2-60-DP-12-42	8/11/05	4.2	6.35	114	80.7	1.63	17.4	-28	Turbid
2-60-DP-13-12	8/11/05	2.9	5.98	107	2.08	2.91	17	87	Clear
2-60-DP-13-42	8/11/05	9.3	6.18	73	122	1.61	17.7	-8	Turbid
2-60-DP-14-12	8/12/05	3	6.66	107	3.2	1.08	16.8	-63	Clear
2-60-DP-14-42	8/12/05	6.2	6.37	148	36.3	4.57	17.5	-57	Clear
2-60-DP-15-12	8/12/05	2.4	6.31	67	2.55	1.34	15.5	-6	Clear
2-60-DP-15-42	8/12/05	10.2	6.47	189	86.6	2.67	16.3	-91	Turbid
2-60-DP-16-12	8/15/05	3.7	6.54	161	7.68	3.58	17.5	-85	Clear
2-60-DP-16-42	8/15/05	6.5	6.37	92	397	3.73	17.1	-72	Turbid
2-60-DP-17-12	9/2/05	3.6	5.96	100	5.38	5.74	18.3	206	Clear
2-60-DP-18-12	8/5/05	2.2	5.78	578	39.9	3.34	18.5	28	Clear
2-60-DP-19-12	8/5/05	2.8	6.06	34	>1000	1.81	18.3	56	Turbid
2-60-DP-20-12	8/8/05	2.2	5.53	35	6.17	2.51	16.4	28	Clear
2-60-DP-21-12	8/23/05	1	6.39	167	84.2	4.97	18.6	-37	Turbid
2-60-DP-22-12	8/16/05	4.3	6.37	21	5.64	0.34	16.3	-22	Clear
2-60-DP-23-12	8/16/05	2.3	5.78	23	8.05	3.25	16.9	164	Clear
2-60-DP-24-12	8/16/05	3.4	6.22	51	2.06	2.34	15.9	-5	Clear
2-60-DP-25-12	8/15/05	0.28	6.21	163	28.6	5.28	24.3	17	Clear

**Table 2: Summary of Data Gap Investigation Groundwater Sampling Field Parameter Results  
2-60s Area, Boeing Plant 2**

Well or Probe Location	Date	Gallons Purged	pH	Cond. (mS/cm)	Turbidity (NTU)	DO (mg/L)	Temp. (°C)	ORP (mV)	Appearance
2-60-DP-25-42	8/15/05	5.9	6.42	172	128	3.26	18.9	-74	Turbid
2-60-DP-26-12	8/15/05	0.31	6.75	139	6.11	4.99	19	25	Clear
2-60-DP-26-42	8/15/05	4.5	6.25	91	>1000	2.41	18.8	-46	Turbid
2-60-PL2-310A	8/16/05	2.1	6.44	384	1.05	4.17	17.7	-34	Clear
2-60-PL2-311A	8/16/05	2.9	6.45	701	6.17	4.31	18.1	-38	Clear
2-60-PL2-312A	8/17/05	2.6	6.06	91	15.4	2.55	16.2	78	Clear
2-60-PL2-314A	8/24/05	2.9	6.12	162	3.28	3.56	16.6	60	Clear
2-60-PL2-315A	8/18/05	2.7	5.97	62	2.31	3.72	17.3	119	Clear
2-60-PL2-315B4	8/25/05	2.4	6.45	128	1.95	2.24	16.8	-10	Clear
2-60-PL2-316A	8/24/05	2.5	6.13	54	9.52	3.75	17.3	22	Clear
2-60-PL2-316B	8/24/05	2.2	6.68	301	3.42	3.52	16.8	-15	Clear
2-60-PL2-316C	8/24/05	3.2	7.09	2040	0.62	6.43	15.5	-107	Clear
2-60-PL2-317AR	8/17/05	4.7	6.30	43	20.4	2.21	18.5	-8	Particles noted
2-60-PL2-319A	8/25/05	4	5.83	110	7.68	4.75	15.9	36	Clear
2-60-PL2-325A	8/17/05	2.1	6.45	86	0.26	3.13	18.4	9	Clear
2-60-PL2-325B	8/17/05	3.4	6.46	184	0.28	2.96	16.9	-51	Clear
2-60-PL2-326A	8/17/05	2	5.52	120	0.69	6.01	16.6	55	Clear
2-60-PL2-326B	8/17/05	2.7	6.65	165	0.98	2.75	15.6	-76	Clear
2-60-PL2-327A	8/18/05	4	5.89	98	17.1	5.2	17.3	52	Clear
2-60-PL2-327B	8/18/05	3.5	6.37	87	0.37	1.81	16.8	-13	Clear
2-60-PL2-328A	8/24/05	1.4	5.89	51	1.49	3.61	16.9	37	Clear
2-60-PL2-328B	8/24/05	3.4	6.50	164	3.29	2.48	16.8	-23	Clear
2-60-PL2-329A	8/25/05	2.4	5.81	53	1.56	4.12	16.8	133	Clear
2-60-PL2-329B	8/25/05	3.8	6.58	158	0.99	2.12	16.3	-2	Clear
2-60-PL2-330A	8/25/05	1.8	5.91	65	1	3.94	17.7	34	Clear
2-60-PL2-330B	8/25/05	3.4	6.52	94	2.35	1.78	17.2	-3	Clear
2-60-PL2-331A	8/25/05	3	5.86	64	8.8	5.16	18.1	45	Clear
2-60-PL2-331B	8/25/05	3.4	6.43	148	2	2.43	17.4	-17	Clear
2-60-PL2-332A	8/17/05	3	6.04	93	0.67	4.94	16.7	55	Clear
2-60-PL2-604A	8/30/05	2.7	6.69	153	2.24	1.22	16.7	-39	Clear
2-60-PL2-605A	8/30/05	5.4	6.55	386	7.31	2.35	16.6	-22	Clear
2-60-PL2-606A	8/30/05	2.7	6.38	236	4.65	5.48	17.4	-15	Clear

**Table 3: Summary of Data Gap Investigation Groundwater Sampling Field Parameter Results  
2-66 Area, Boeing Plant 2**

Well or Probe Location	Date	Gallons Purged	pH	Cond. (mS/cm)	Turbidity (NTU)	DO (% saturation)	Temp. (°C)	ORP (mV)	Appearance
PL2-002A	8/23/06	1.3	6.37	12.9	1.06	25.3	19.16	319.9	clear
PL2-002B	8/23/06	1.9	6.50	7.107	1.35	21.8	16.71	-35.7	clear
PL2-004A	8/28/06	1.5	6.34	8.838	7.2	16.9	18.82	272	clear
PL2-005A	8/25/06	1.5	6.45	0.835	3.67	19.4	18.91	387.6	clear
PL2-005B	8/25/06	2.8	6.56	5.16	1.29	10.5	17.76	1.1	clear
PL2-006AR	8/25/06	1.0	6.59	0.802	4.53	22.8	18.03	100.8	clear
PL2-007AR	8/18/06	1.1	6.36	2.138	1.63	24.1	16.27	438.1	clear
PL2-008B	8/21/06	1.6	6.76	4.99	0.67	30.0	15.26	-83.8	clear
PL2-008C	8/21/06	1.5	7.04	6.279	0.86	18.2	16.47	-137.3	slightly greenish
PL2-009A	8/22/06	1.5	6.61	0.803	2.64	22.0	16.04	-116.4	clear
PL2-009B	8/22/06	2.0	6.71	2.71	1.55	17.0	15.56	-71.5	clear
PL2-010A	8/7/06	1.4	6.34	5.579	1.51	42.5	18.11	300.2	clear
PL2-011A	8/28/06	5.5	6.73	45.47	3.7	60.7	17.88	117	clear
PL2-012A	8/28/06	5.2	6.55	45.15	5.93	58.8	18.37	204.9	clear
PL2-013A	8/22/06	1.3	7.03	21.97	1.53	41.0	18.19	473	clear
PL2-013AR	8/22/06	1.3	6.96	0.616	13.8	7.0	16.94	187.7	clear
PL2-013B	8/22/06	1.9	6.70	0.783	2.98	14.3	16.29	-106.1	clear
PL2-013C	8/22/06	2.5	7.11	20.44	4.38	14.6	16.6	-158.6	clear
PL2-014AR	8/30/06	1.6	6.45	0.852	3.16	64.9	16.61	193.3	clear
PL2-014B	8/30/06	0.9	6.41	1.114	7.13	66.5	16.2	140.1	clear
PL2-015A	8/30/06	1.7	6.78	27.51	11.4	62.4	17.32	304.6	clear
PL2-015AR	8/30/06	4.9	6.79	2.315	3.36	61.8	17.46	335.9	clear
PL2-015B	8/30/06	3.3	6.84	21.63	2.25	11.0	17.12	142.1	clear
PL2-015BR	8/30/06	1.9	6.51	10.96	2.36	60.3	17.92	195	clear
PL2-017A	8/8/06	2.2	6.65	19.18	0.8	23.7	18.72	-124.6	clear
PL2-018A	8/24/06	1.6	6.60	0.546	3.1	27.2	14.46	-28.6	clear
PL2-019A	8/28/06	2.0	6.44	3.14	1.05	4.7	17.34	72.8	clear
PL2-020A	8/24/06	2.3	6.50	0.86	22.1	20.5	16.25	200.9	clear
PL2-021A	8/8/06	1.4	6.32	4.982	0.65	22.8	18.16	352.3	clear
PL2-021B	8/8/06	1.1	7.06	4.043	3.74	26.5	15.53	-120.5	clear
PL2-021C	8/8/06	5.7	6.67	24.8	7.28	22.9	15.37	-217.5	greenish tint
PL2-022A	8/28/06	3.0	6.59	3.292	16.7	62.6	17.27	104.6	clear
PL2-023A	8/24/06	3.2	6.53	0.512	7.51	10.3	16.1	347.9	clear
PL2-024A	8/24/06	2.0	6.51	0.508	1.45	10.5	16.08	265.7	clear
PL2-025A	8/24/06	2.6	6.73	21.13	3.52	28.6	18.62	301.8	clear
PL2-026A	8/29/06	4.5	6.37	0.582	3.2	65.3	16.51	364.5	clear
PL2-026B	8/29/06	0.7	6.39	3.39	3.16	65.9	16.37	349.6	clear
PL2-026C	8/29/06	0.7	6.37	50.86	7.43	65.5	16.47	331.1	clear
PL2-027A	8/25/06	3.1	6.49	1.935	68.1	16.0	16.37	340.1	slightly turbid
PL2-028A	8/29/06	4.3	6.32	2.26	13.8	64.5	16.73	432.2	clear
PL2-028B	8/29/06	4.5	6.37	2.699	3.14	65.4	16.48	302.3	clear
PL2-029A	8/22/06	1.7	6.56	30.07	6.99	24.9	17.39	432.1	clear
PL2-030A	8/21/06	2.1	6.89	10.76	0.54	4.0	17.9	180.2	clear
PL2-030C	8/21/06	2.0	7.96	5.742	1.2	4.0	16.77	-150.9	slightly greenish



**Table 3: Summary of Data Gap Investigation Groundwater Sampling Field Parameter Results  
2-66 Area, Boeing Plant 2**

Well or Probe Location	Date	Gallons Purged	pH	Cond. (mS/cm)	Turbidity (NTU)	DO (% saturation)	Temp. (°C)	ORP (mV)	Appearance
PL2-031A	8/21/06	2.1	6.86	2.698	3.75	21.7	16.31	26.2	clear
PL2-032A	8/28/06	1.2	6.42	156.7	3.3	20.5	16.24	272.5	clear
PL2-033AR	8/24/06	2.3	6.69	1.113	5.01	19.8	17.24	-44.5	clear
PL2-034A	8/18/06	2.3	6.52	2.427	3.06	18.2	17.71	137.2	clear
PL2-035A	8/18/06	1.9	6.43	3.077	2.16	21.3	17.12	-7.2	clear
PL2-036A	8/29/06	5.0	7.54	18.837	9.94	48.0	18.54	345.5	clear
PL2-036AR	8/29/06	4.8	6.67	17.21	2.99	43.0	18.89	331.4	clear
PL2-036B	8/29/06	5.0	6.51	10.22	23.4	44.3	17.82	291.3	clear
PL2-036C	8/29/06	4.9	6.46	13.62	4.7	60.7	17.8	239.4	clear
PL2-038A	8/29/06	4.7	6.43	37.35	8.6	64.0	16.85	358.1	clear
PL2-039A	8/28/06	5.5	6.64	26.26	2.31	9.0	16.01	408.4	clear
PL2-041AA	8/21/06	1.1	6.89	2.929	1.5	13.8	18.89	-161	clear
PL2-043B	8/21/06	1.0	7.37	12	0.6	5.0	169.3	225.1	clear
PL2-044B	8/21/06	1.3	7.64	15.91	1.12	6.0	15.35	-118.6	clear
PL2-JF01AR	8/23/06	2.0	6.50	1.461	1.1	7.0	16.1	78.5	clear
PL2-JF01B	8/23/06	0.8	6.68	4.212	90.4	5.0	16.31	446.2	turbid
PL2-JF01C	8/23/06	1.2	6.98	24.17	1.76	9.0	16.22	312.4	clear
PL2-JF02A	8/23/06	1.8	6.51	0.532	9.23	10.0	15.59	104.2	clear
PL2-JF04A	8/23/06	3.6	6.40	0.522	21.4	29.5	15.45	36	clear
PL2-607A	8/22/06	1.3	6.63	0.728	1.84	14.2	16.91	47.2	clear
PP-1B-I	8/21/06	1.3	6.46	8.919	1.02	18.2	16.65	-83.5	clear
PP-1B-O	8/21/06	1.1	6.46	8.338	3.82	17.8	16.39	229.2	clear
PP-2B-I	8/18/06	2.1	6.52	6.91	2.16	21.3	18.5	115	clear
PP-2B-O	8/18/06	1.6	6.54	6.26	10.1	23.2	17.85	408.1	clear
PP-3A-I	8/17/06	2.3	6.62	5.297	2.05	14.1	16.59	11	clear
PP-3B-I	8/17/06	1.6	6.64	13.14	1.77	25.5	16.24	-54.5	clear
PP-3C-I	8/17/06	2.0	6.56	9.013	8.13	22.0	17.28	-144.2	clear
PP-4B-I	8/18/06	1.6	6.42	5.398	2.88	29.2	16.46	400.1	clear
PP-4B-O	8/18/06	3.4	6.43	6.078	430	25.5	16.21	38	clear
PP-5B-I	8/8/06	2.0	6.98	17.07	0.58	23.8	15.86	-150.8	clear
PP-5B-O	8/8/06	1.1	6.95	15.38	2.22	23.1	16.38	178.5	clear
2-66-DP-1-13	8/15/06	0.3	6.46	0.622	184	18.4	18.53	29.7	turbid
2-66-DP-2-13	8/15/06	1.6	6.41	7.766	7.87	18.6	18.25	360.9	clear
2-66-DP-3-13	8/15/06	4.0	6.51	2.03	27.6	6.3	18.15	63	clear
2-66-DP-4-13	8/15/06	3.1	6.59	NM	7.43	19.0	17.58	-68.8	clear
2-66-DP-5-13	8/14/06	3.3	6.47	1.62	6.21	17.3	18.26	-36.3	clear
2-66-DP-6-13	8/11/06	2.2	6.95	2.161	21.7	11.5	16.31	201.4	clear
2-66-DP-7-13	8/10/06	0.4	6.55	0.284	45.3	21.5	20.95	7.9	turbid
2-66-DP-8-13	8/16/06	1.9	6.73	2.818	11.4	13.7	18.58	-88.6	clear
2-66-DP-9-13	8/16/06	4.2	6.65	0.651	45.6	16.2	16.53	-90.6	clear
2-66-DP-10-13	8/10/06	2.7	6.83	0.885	3.97	16.4	18.1	170.5	clear
2-66-DP-11-13	8/10/06	3.1	6.63	0.915	36.7	16.4	17.76	45.3	turbid
2-66-DP-11-43	8/10/06	4.0	7.14	0.853	32	14.9	16.17	-140	slightly turbid
2-66-DP-12-13	8/15/06	3.6	6.72	0.489	77	27.5	15.56	81.6	clear

**Table 3: Summary of Data Gap Investigation Groundwater Sampling Field Parameter Results  
2-66 Area, Boeing Plant 2**

Well or Probe Location	Date	Gallons Purged	pH	Cond. (mS/cm)	Turbidity (NTU)	DO (% saturation)	Temp. (°C)	ORP (mV)	Appearance
2-66-DP-13-13	8/9/06	2.6	6.23	24.12	6.28	17.8	18.08	4.7	clear
2-66-DP-13-43	8/9/06	5.1	6.72	10.72	10.9	15.6	17.34	-128.5	slightly turbid
2-66-DP-14-13	8/9/06	2.0	6.58	10.39	25.8	22.0	16.95	17.1	slightly turbid
2-66-DP-14-43	8/9/06	4.7	6.63	13.56	9.83	10..76	15.8	-137.5	slightly turbid
2-66-DP-15-13	8/15/06	1.6	6.54	0.728	8.76	22.8	16.59	-3.3	clear
2-66-DP-16-13	8/10/06	0.3	6.63	3.235	10.5	21.1	19.03	3.1	turbid
2-66-DP-16-43	8/10/06	3.1	6.78	2.268	19	14.4	16.67	-127.3	clear
2-66-DP-17-13	8/11/06	4.0	6.69	2.123	12	22.6	16.26	309.3	clear
2-66-DP-17-43	8/11/06	7.7	6.78	11.35	28.8	10.4	16.23	-154.7	turbid
2-66-DP-18-13	8/16/06	3.5	7.12	0.872	30.1	14.2	18.43	-53.9	clear
2-66-DP-19-13	8/11/06	1.3	6.58	0.517	5.57	11.0	17.45	57.4	clear
2-66-DP-20-13	8/11/06	1.7	6.72	1.155	5.91	11.4	17.45	223.4	clear
2-66-DP-21-13	8/14/06	0.7	6.43	1.56	67.5	18.8	19.91	-61	clear
2-66-DP-22-13	8/14/06	4.7	6.42	2.022	11.8	13.3	16.84	308	clear
2-66-DP-23-13	8/16/06	2.8	6.57	0.806	22.4	18.2	17.07	-90.5	clear
2-66-DP-24-13	8/17/06	1.1	6.40	0.67	40.1	26.3	18.07	293.6	clear
2-66-DP-25-13	8/8/06	3.0	6.91	0.956	27.7	11.7	16.17	-92.5	slightly turbid
2-66-DP-26-13	8/15/06	1.7	6.93	5.021	5.23	18.7	18.1	-74.5	clear
2-66-DP-27-13	8/14/06	3.5	6.46	2.592	5.53	17.8	16.95	-15.9	clear
2-66-DP-28-13	8/11/06	4.9	6.81	0.333	59.4	14.8	17.86	279.6	slightly turbid
2-66-DP-29-13	8/9/06	1.1	6.69	1.101	7.3	15.0	17.25	-99.4	clear
2-66-DP-30-13	8/16/06	2.0	6.72	0.631	9.85	17.0	17.72	-118.8	clear
2-66-DP-31-13	8/16/06	2.2	6.41	0.596	9.24	15.4	16.81	-102.3	clear
2-66-DP-32-13	8/14/06	0.6	7.05	1.71	134	24.2	16.36	-83.6	turbid
2-66-DP-33-13	8/16/06	0.3	6.47	0.54	1000	20.1	20.13	21.1	turbid
2-66-DP-34-13	8/17/06	2.6	6.42	0.409	9.02	21.0	15.89	-116.5	clear
2-66-DP-35-13	8/15/06	2.7	6.73	0.915	18.4	17.4	17.79	-120.9	clear
2-66-DP-36-13	8/16/06	5.2	6.42	0.455	8.3	24.1	16.39	45.9	clear
2-66-DP-37-13	8/14/06	1.5	6.37	2.72	6.16	19.5	16.68	187.7	clear
2-66-DP-38-13	8/10/06	1.7	6.87	3.788	5.62	14.9	17.77	-114.7	clear

**Table 4: Summary of Data Gap Investigation Groundwater Sampling Field Parameter Results**  
**2-40 Area, Boeing Plant 2**

Well or Probe Location	Screened Interval (ft)	Date	Gallons Purged	pH	Cond. (mS/cm)	Turbidity (NTU)	DO (mg/L)	Temp. (°C)	ORP (mV)	Appearance
2-40-DP-01	10 to 14	6/25/08	3.5	6.76	0.503	19.47	6.09	15.27	-134.2	yellow/clear
2-40-DP-01	41 to 45	6/25/08	3.1	7.03	1.049	199	0.05	16.85	-124.7	cloudy
2-40-DP-01	61 to 65	6/26/08	2.3	7.71	9.068	59.7	0.14	14.16	-181.5	clear
2-40-DP-02	10 to 14	6/26/08	2.0	7.04	0.849	6.37	0.19	14.08	-136.5	clear
2-40-DP-02	41 to 45	6/24/08	0.9	7.23	0.979	329	0.13	15.80	-98.9	cloudy
2-40-DP-02	61 to 65	6/26/08	1.5	7.70	1.287	195	0.09	17.06	-126.4	cloudy
2-40-DP-03	10 to 14	6/25/08	2.0	6.72	0.837	11.64	0.24	15.61	-87.1	clear
2-40-DP-03	35 to 39	6/26/08	1.0	7.30	1.149	363	0.12	14.93	-119	cloudy
2-40-DP-03	41 to 45	6/25/08	3.0	7.48	0.6	307	0.05	15.39	-137.4	cloudy
2-40-DP-03	61 to 65	6/27/08	2.2	7.67	6.278	330	0.16	14.55	-159.8	cloudy
2-40-DP-04	12 to 16	6/17/08	2.2	6.70	0.809	50.4	0.44	15.94	135.8	clear
2-40-DP-04	35 to 39	6/17/08	1.7	6.95	1.091	709	0.54	15.86	131.9	cloudy
2-40-DP-04	41 to 45	6/17/08	1.7	6.63	1.353	639	0.56	15.96	119.9	cloudy
2-40-DP-04	61 to 65	6/17/08	2.1	7.04	5.734	297	0.54	15.43	161.8	cloudy
2-40-DP-05	10 to 14	6/18/08	2.8	6.73	0.539	706	0.63	16.05	109.9	cloudy/brown
2-40-DP-05	12 to 16	6/18/08	0.8	6.73	1.795	83.6	0.95	17.18	131.1	yellow/clear
2-40-DP-05	41 to 45	6/18/08	1.2	7.16	0.799	510	0.57	16.84	114.8	cloudy
2-40-DP-05	61 to 65	6/18/08	1.0	7.11	13.37	635	0.56	17.15	165.5	cloudy
2-40-DP-06	14 to 18	6/16/08	1.3	6.61	2.715	490	0.75	15.85	147.5	cloudy/yellow
2-40-DP-07	10 to 14	7/3/08	1.8	7.18	1.945	23.2	0.09	15.86	-7.8	clear
2-40-DP-08	12 to 16	7/3/08	1.8	7.28	0.578	8.34	0.16	15.31	11.4	clear
2-40-DP-09	10 to 14	7/7/08	1.7	7.31	0.61	6.1	0.41	15.08	116.7	clear
2-40-DP-10	10 to 14	6/23/08	2.7	6.59	1.05	24.7	0.74	14.31	-115.9	cloudy
2-40-DP-10	35 to 39	6/23/08	9.8	6.97	31.07	688	0.10	15.73	-151.8	cloudy
2-40-DP-10	41 to 45	6/23/08	2.0	7.00	37.43	93.7	0.21	15.12	-156.4	lt. cloudy
2-40-DP-10	61 to 65	6/24/08	2.0	7.47	561	274	0.10	15.24	-203.7	cloudy
2-40-DP-11	10 to 14	6/24/08	2.0	7.88	94.21	20.1	0.10	15.95	-93.25	cloudy
2-40-DP-11	35 to 39	6/25/08	3.5	6.89	0.515	361	0.16	14.85	-145.7	cloudy
2-40-DP-11	41 to 45	6/25/08	2.4	6.88	1.057	556	108	15.16	-133.7	cloudy
2-40-DP-11	61 to 65	6/25/08	2.2	7.47	10.71	286	0.08	17.31	-179.5	cloudy
2-40-DP-12	10 to 14	6/20/08	1.1	6.94	1.787	194	1.90	18.01	-93.2	cloudy
2-40-DP-12	35 to 39	6/20/08	2.1	6.92	0.631	626	0.30	17.33	-160.1	cloudy
2-40-DP-12	41 to 45	6/27/08	2.0	7.35	0.812	365	0.17	16.79	-120.9	cloudy
2-40-DP-12	61 to 65	6/27/08	2.6	8.01	8.581	333	0.04	17.18	-181.7	cloudy
2-40-DP-13	14 to 18	7/3/08	4.0	7.14	0.726	69.7	0.03	15.63	-64.1	clearing
2-40-DP-14	10 to 14	6/10/08	0.3	6.94	3.413	237	2.11	16.76	137.9	brown/yellow
2-40-DP-14	35 to 39	6/11/08	2.3	6.72	0.48	597	1.42	16.85	91.2	cloudy
2-40-DP-14	41 to 45	6/11/08	2.3	6.77	0.713	580	0.88	16.79	79.3	cloudy - clearing
2-40-DP-14	61 to 65	6/11/08	1.2	7.12	8.879	575	0.67	17.52	67.9	cloudy
2-40-DP-15	10 to 14	6/11/08	2.7	6.71	0.783	120	0.77	16.40	112.9	clearing
2-40-DP-15	35 to 39	6/11/08	1.5	6.97	0.65	424	0.99	16.83	11.8	cloudy/brown
2-40-DP-15	41 to 45	6/12/08	2.2	6.40	0.628	270	0.53	16.52	83.5	cloudy/brown
2-40-DP-15	61 to 65	6/12/08	2.7	6.97	8.058	781	0.46	16.31	111.6	cloudy
2-40-DP-16	10 to 14	6/13/08	1.9	6.67	1.099	43.6	0.35	16.00	95	clear
2-40-DP-17	10 to 14	6/12/08	0.9	6.85	0.955	115	1.37	16.36	81.9	clearing
2-40-DP-18	10 to 14	6/6/08	2.7	5.91	0.806	54.5	0.14	15.69	124.5	clear
2-40-DP-18	35 to 39	6/6/08	2.7	6.38	0.679	227	0.07	15.86	15.4	cloudy - clearing
2-40-DP-19	10 to 14	5/19/08	1.5	6.83	3.866	5.89	1.42	16.58	-17.5	clear
2-40-DP-19	25 to 29	5/19/08	1.3	6.64	0.576	259	0.23	17.60	-114	cloudy
2-40-DP-19	31 to 35	5/20/08	2.2	6.52	0.54	672	0.18	16.75	-99.6	cloudy/brown
2-40-DP-20	12 to 16	7/3/08	1.7	6.81	0.869	57.5	0.06	17.20	35.4	clear
2-40-DP-21	12 to 16	6/20/08	0.7	7.03	1.571	55.2	2.00	17.92	-68.9	cloudy
2-40-DP-21	41 to 45	6/27/08	2.2	7.41	0.46	410	0.10	16.34	-127.3	cloudy
2-40-DP-21	61 to 65	6/30/08	3.6	7.98	20.03	217	0.11	16.34	-166.4	cloudy
2-40-DP-22	12 to 16	6/19/08	1.4	6.15	1.27	49.9	0.03	17.33	33.3	clear
2-40-DP-22	35 to 39	6/19/08	3.0	6.33	0.509	407	0.20	17.35	29.7	cloudy

**Table 4: Summary of Data Gap Investigation Groundwater Sampling Field Parameter Results**  
**2-40 Area, Boeing Plant 2**

Well or Probe Location	Screened Interval (ft)	Date	Gallons Purged	pH	Cond. (mS/cm)	Turbidity (NTU)	DO (mg/L)	Temp. (°C)	ORP (mV)	Appearance
2-40-DP-22	41 to 45	6/19/08	1.5	6.37	0.835	478	0.20	17.35	45.5	clear
2-40-DP-22	61 to 65	6/20/08	3.6	7.39	11.25	671	0.20	16.92	-258.9	cloudy
2-40-DP-23	10 to 14	6/30/08	1.2	7.19	1.368	71.6	0.09	20.62	-68	cloudy
2-40-DP-23	41 to 45	6/30/08	2.9	7.42	2.779	398	0.06	18.39	-104.9	cloudy
2-40-DP-23	61 to 65	6/30/08	2.7	7.70	31.5	299	0.02	18.93	-147.9	cloudy
2-40-DP-24	10 to 14	6/9/08	2.5	6.29	0.632	25.5	0.43	17.93	112	clear
2-40-DP-24	35 to 39	6/9/08	2.5	6.64	0.808	524	0.64	17.62	76.7	cloudy
2-40-DP-24	41 to 45	6/9/08	1.7	6.75	4.535	599	0.67	17.68	99.1	cloudy
2-40-DP-24	61 to 65	6/10/08	2.7	7.01	11.6	159	0.49	18.01	18.2	cloudy
2-40-DP-25	10 to 14	7/3/08	3.0	7.15	0.894	24.4	0.03	15.89	-81.1	clear
2-40-DP-26	10 to 14	7/2/08	3.3	6.77	0.932	25	0.08	17.03	-43.6	clear/yellowish
2-40-DP-27	10 to 14	6/5/08	2.5	6.22	0.736	42.3	0.09	17.53	41	clear
2-40-DP-27	35 to 39	6/5/08	3.3	6.41	0.941	48.1	0.09	18.05	-89.5	cloudy
2-40-DP-27	41 to 45	6/5/08	1.5	6.37	1.782	414	0.10	17.68	-64.5	cloudy
2-40-DP-27	61 to 65	7/2/08	1.9	7.32	11.95	418	0.06	18.21	-99.2	cloudy
2-40-DP-28	10 to 14	6/6/08	2.0	6.40	0.562	19.9	0.10	15.90	18	clear
2-40-DP-29	10 to 14	6/3/08	1.7	6.49	0.723	5.1	0.44	15.72	-61.2	clear
2-40-DP-29	28 to 32	6/3/08	2.8	6.66	0.628	158	0.28	16.40	-76.1	cloudy
2-40-DP-29	35 to 39	6/3/08	2.5	6.63	0.811	152	0.17	16.33	-73.2	cloudy
2-40-DP-29	41 to 45	6/4/08	1.8	6.62	0.983	213	0.17	15.89	-33.6	cloudy
2-40-DP-29	61 to 65	6/4/08	4.0	6.82	6.02	206	0.10	16.41	-144	cloudy
2-40-DP-30	10 to 14	6/16/08	1.9	6.50	0.0641	68.2	0.60	15.66	118	clear
2-40-DP-31	10 to 14	7/8/08	2.0	7.37	0.702	74.3	0.04	16.73	-36.7	cloudy
2-40-DP-32	10 to 14	5/28/08	1.3	6.62	0.7	15	0.75	16.20	-69.6	clear
2-40-DP-32	41 to 45	5/28/08	2.0	6.41	6.493	373	0.08	17.31	-98.6	cloudy
2-40-DP-32	61 to 65	5/28/08	2.4	6.66	39.3	526	0.26	17.48	-139.6	very silty/brown
2-40-DP-33	10 to 14	6/2/08	1.1	6.68	0.86	36.7	0.40	15.24	-29.3	clear
2-40-DP-33	25 to 29	6/2/08	1.9	6.59	0.586	263	0.10	16.51	-101.3	cloudy
2-40-DP-33	31 to 35	6/2/08	1.9	6.62	0.551	250	0.10	16.71	-113.9	dark-cloudy
2-40-DP-33	41 to 45	6/2/08	2.0	6.69	2.582	173	0.08	16.60	-115	cloudy
2-40-DP-33	61 to 65	6/3/08	3.1	6.13	39.95	52.9	0.38	16.71	-71.6	cloudy
2-40-DP-34	10 to 14	7/7/08	3.8	7.54	0.324	29.9	0.02	15.47	-35.8	clear
2-40-DP-35	10 to 14	5/30/08	0.5	6.65	0.753	9.86	2.30	15.50	120.1	clear
2-40-DP-35	25 to 29	5/30/08	3.4	6.70	0.702	83	0.21	16.31	-123.2	clearing
2-40-DP-35	31 to 35	5/30/08	2.6	6.64	0.785	281	0.18	16.64	-111.5	cloudy
2-40-DP-35	41 to 45	5/30/08	2.4	6.67	5.887	112	0.63	16.53	-108.1	cloudy
2-40-DP-35	61 to 65	6/2/08	2.3	6.49	42.79	196	0.08	16.33	-107.2	cloudy
2-40-DP-36	10 to 14	7/1/08	1.2	6.78	0.859	64.1	0.11	17.52	-40.5	clear
2-40-DP-37	10 to 14	5/22/08	2.6	6.68	1.013	8.81	9.05	13.81	180.9	clear
2-40-DP-37	19 to 23	5/23/08	2.6	6.60	1.16	16.63	2.12	14.52	15.6	clear
2-40-DP-37	25 to 29	5/23/08	2.0	6.39	0.638	8.2	0.37	15.70	-82.1	clear
2-40-DP-37	31 to 35	5/23/08	2.9	6.39	0.613	468	0.31	16.51	-108.8	brown/cloudy
2-40-DP-37	41 to 45	5/23/08	1.7	6.37	41.92	468	0.23	16.25	-113	cloudy
2-40-DP-37	61 to 65	5/23/08	2.1	6.51	39.59	293	0.33	16.40	-139.7	cloudy
2-40-DP-38	10 to 14	5/22/08	1.3	6.73	0.942	7.13	8.22	12.54	213.3	clear
2-40-DP-38	19 to 23	5/22/08	3.2	6.65	1.828	59.7	0.22	14.20	-46.9	clear
2-40-DP-38	25 to 29	5/22/08	1.8	6.53	0.909	467	0.16	14.95	-94.4	brown/cloudy
2-40-DP-38	31 to 35	5/22/08	3.0	6.41	0.868	65.9	0.23	16.16	-109.8	clear
2-40-DP-38	41 to 45	5/22/08	2.8	6.37	35.12	453	0.45	16.16	-116	cloudy
2-40-DP-38	61 to 65	5/22/08	6.8	6.46	43.67	336	0.18	15.92	-116.1	brown/cloudy
2-40-DP-39	10 to 14	5/20/08	1.8	6.52	2.474	9.6	9.02	13.48	73.7	clear
2-40-DP-39	19 to 23	5/20/08	3.4	6.48	0.535	55.1	0.18	16.18	-77.5	clear
2-40-DP-39	25 to 29	5/20/08	2.4	6.47	0.632	346	0.22	17.13	-93.5	brown/cloudy
2-40-DP-39	31 to 35	5/21/08	2.8	6.44	2.392	386	0.19	16.74	-113	cloudy
2-40-DP-39	41 to 45	5/21/08	2.4	6.38	38.39	540	0.15	16.58	-188.7	cloudy
2-40-DP-39	61 to 65	5/21/08	2.6	6.56	43.77	434	0.13	16.52	-128.6	cloudy/brown

**Table 4: Summary of Data Gap Investigation Groundwater Sampling Field Parameter Results**  
**2-40 Area, Boeing Plant 2**

Well or Probe Location	Screened Interval (ft)	Date	Gallons Purged	pH	Cond. (mS/cm)	Turbidity (NTU)	DO (mg/L)	Temp. (°C)	ORP (mV)	Appearance
2-40-DP-40	10 to 14	5/15/08	1.1	6.56	4.08	8.9	9.11	12.43	96.9	clear
2-40-DP-40	19 to 23	5/19/08	3.7	6.42	1.825	457	0.16	15.07	-88.3	cloudy
2-40-DP-40	25 to 29	5/19/08	2.6	6.46	0.541	83.1	3.20	16.50	-82.7	clearing
2-40-DP-40	31 to 35	5/19/08	2.5	6.45	0.549	562	0.13	16.51	-98.9	cloudy
2-40-DP-40	41 to 45	5/20/08	1.6	6.33	38.72	626	0.17	15.81	-90.1	cloudy/brown
2-40-DP-40	61 to 65	5/20/08	2.0	6.53	43.88	271	0.24	15.82	-96	cloudy
2-40-DP-41	10 to 14	5/14/08	1.9	7.36	2.957	22.1	10.20	12.74	72.4	clear
2-40-DP-41	19 to 23	5/15/08	1.5	6.77	3.047	59.9	2.06	14.98	-41	clear
2-40-DP-41	25 to 29	5/15/08	2.0	6.53	0.65	67.2	0.36	15.27	-83.8	clear
2-40-DP-41	31 to 35	5/15/08	1.3	6.56	0.572	351	0.20	15.75	-107	cloudy
2-40-DP-41	41 to 45	5/15/08	2.4	6.49	36.01	283	0.12	15.94	-130.7	silty/cloudy
2-40-DP-41	61 to 65	5/15/08	3.8	6.59	42.82	183	0.22	15.81	-148.2	cloudy/silty
2-40-DP-42	10 to 14	5/13/08	0.9	6.83	3.303	5.35	6.99	12.01	54.4	clear
2-40-DP-42	19 to 23	5/14/08	2.0	6.84	3.815	5.19	1.19	14.71	-53.8	clear
2-40-DP-42	25 to 29	5/14/08	1.5	6.67	0.733	92.9	0.23	14.86	-227.6	clear
2-40-DP-42	31 to 35	5/14/08	3.8	6.54	0.762	90.1	0.18	15.15	-133.6	clear
2-40-DP-42	41 to 45	5/13/08	1.5	6.62	34.55	533	0.15	14.53	-252.4	cloudy
2-40-DP-42	61 to 65	5/13/08	1.9	7.01	43.51	665	0.09	14.84	-486	cloudy
2-40-DP-43	10 to 14	5/12/08	1.3	7.50	4.526	8.72	9.66	12.14	53.3	clear
2-40-DP-43	19 to 23	5/12/08	0.6	7.02	0.562	10.01	0.37	14.04	-164.6	clear
2-40-DP-43	25 to 29	5/12/08	2.1	6.89	0.499	487	0.19	14.53	-251.6	cloudy
2-40-DP-43	31 to 35	5/13/08	3.0	6.75	0.588	606	0.22	14.93	-443.6	cloudy
2-40-DP-43	41 to 45	5/12/08	3.7	6.95	19.78	40	0.29	14.63	-246.6	clear
2-40-DP-43	61 to 65	5/12/08	2.2	7.19	43.15	126	0.24	14.26	-517.3	clear
2-40-DP-44	10 to 14	12/16/08	3.0	6.57	4.579	9.86	0.19	10.80	-68.9	clear
2-40-DP-44	19 to 23	12/16/08	0.8	6.76	2.056	88.5	0.31	10.00	-53.7	cloudy
2-40-DP-44	25 to 29	12/16/08	1.9	6.93	36.21	413	0.17	12.03	-15.6	cloudy
2-40-DP-44	31 to 35	12/17/08	2.5	6.76	43.5	101	0.29	11.81	-15.9	dark, cloudy
2-40-DP-44	41 to 45	12/17/08	3.4	6.59	43.65	9.69	0.30	10.89	-50.5	clear
2-40-DP-44	61 to 65	12/17/08	4.0	6.82	33.41	4.93	0.40	10.48	-56.6	clear
2-40-DP-45	10 to 14	5/27/08	1.4	6.69	0.971	65.9	8.22	15.10	158.4	clearing
2-40-DP-45	19 to 23	5/27/08	3.0	6.52	0.582	151	0.24	16.41	-101.6	clearing
2-40-DP-45	25 to 29	5/27/08	3.2	6.50	0.597	679	0.64	16.87	-104.1	cloudy
2-40-DP-45	31 to 35	5/27/08	1.5	6.44	0.567	84.4	0.51	17.10	-99.3	clearing
2-40-DP-45	41 to 45	5/27/08	2.2	6.40	39.07	294	1.21	16.81	-76.9	cloudy
2-40-DP-45	61 to 65	5/27/08	2.6	6.51	37.95	435	0.59	16.79	-131.6	cloudy
2-40-DP-46	10 to 14	6/9/08	0.4	6.6	1.646	370	1.53	19.11	102.2	cloudy/brown
2-40-DP-47	10 to 14	6/25/08	2.8	6.39	1.309	17.99	0.17	13.42	-87	clear
2-40-DP-48	10 to 14	7/1/08	2.6	6.73	0.608	55.4	6.05	17.27	-65.6	clear
2-40-DP-49	10 to 14	6/27/08	1.7	7.32	1.342	13.93	0.11	16.22	-110.4	clear/yellow
2-40-DP-50	10 to 14	6/18/08	2.2	6.59	0.792	36.6	0.64	15.93	121.1	clear
2-40-DP-51	10 to 14	6/3/08	2.0	6.61	0.999	11.33	0.51	16.87	-113.6	clear
2-40-DP-52	10 to 14	7/2/08	2.6	6.94	0.716	35.7	0.08	16.79	-65	clear
2-40-DP-53	10 to 14	6/9/08	2.1	6.34	0.736	125	0.48	17.76	78.4	clearing
2-40-DP-54	10 to 14	6/6/08	2.5	6.31	0.582	92.9	0.09	16.83	31.2	clear
2-40-DP-55	12 to 16	7/7/08	3.4	7.23	0.719	27.1	0.03	18.21	-37.6	clearing
2-40-DP-56	10 to 14	6/4/08	1.0	6.78	0.861	6.1	0.35	15.61	-23.6	clear
2-40-DP-57	10 to 14	6/5/08	1.5	6.14	0.669	64.9	0.11	16.43	-1.4	clear
2-40-DP-58	10 to 14	6/10/08	1.6	6.80	1.339	83.8	0.49	17.16	-9.6	brown/yellow
2-40-DP-59	10 to 14	6/18/08	3.1	6.77	0.589	47.3	0.49	15.91	124.5	clear
2-40-DP-60	10 to 14	6/17/08	0.3	7.22	1.586	227	2.4	17.34	142.9	cloudy
2-40-DP-61	10 to 14	6/11/08	2.7	6.54	2.19	67.4	0.45	19.16	150.1	brown/yellow
2-40-DP-62	12 to 16	6/17/08	2.9	6.83	1.56	28.5	0.50	16.41	133.6	yellow/clear
2-40-DP-63	11 to 15	6/17/08	2.2	6.62	0.821	36	0.43	16.18	136.4	clear
2-40-DP-64	10 to 14	6/5/08	2.7	6.33	0.75	140	0.10	16.35	22.4	clear
2-40-DP-65	10 to 14	6/9/08	0.1	6.75	1.584	N/A	3.4	16.66	107.4	N/A
2-40-DP-66	10 to 14	6/16/08	0.1	6.99	2.146	139	0.6	14.72	158.9	cloudy/yellow

**Table 4: Summary of Data Gap Investigation Groundwater Sampling Field Parameter Results**  
**2-40 Area, Boeing Plant 2**

Well or Probe Location	Screened Interval (ft)	Date	Gallons Purged	pH	Cond. (mS/cm)	Turbidity (NTU)	DO (mg/L)	Temp. (°C)	ORP (mV)	Appearance
2-40-DP-67	10 to 14	6/19/08	0.6	6.91	3.163	278	1.00	17.29	-177.6	cloudy
2-40-DP-68	10 to 14	6/19/08	4.1	6.82	0.435	27.8	0.49	15.90	109.9	clear
2-40-DP-69	10 to 14	5/28/08	1.2	6.72	7.323	10.44	4.57	14.04	82.3	clear
2-40-DP-70	10 to 14	5/28/08	0.8	6.37	6.819	40	2.66	14.94	81.6	clear
2-40-DP-71	10 to 14	6/23/08	1.4	6.60	89.42	34.7	0.21	15.36	-90.4	cloudy
2-40-DP-72	10 to 14	6/24/08	2.3	7.81	12.92	51.2	0.20	14.61	19.8	cloudy
2-40-DP-73	10 to 14	6/25/08	3.3	6.67	0.359	10	0.04	15.57	-49.2	clear
2-40-DP-74	10 to 14	7/2/08	1.7	6.58	0.202	28.1	0.05	16.19	33.2	clear
2-40-DP-75	10 to 14	7/1/08	3.2	6.88	0.779	57.9	0.08	16.87	-78.7	cloudy
2-40-DP-76	10 to 14	6/5/08	1.9	6.57	0.763	75.9	0.15	15.89	-38.3	clear
2-40-DP-77	10 to 14	6/2/08	1.8	6.66	0.655	8.76	0.51	15.56	-24.7	clear
2-40-DP-78	10 to 14	5/28/08	2.0	6.52	0.779	44.1	0.12	16.41	-65.6	clear
2-40-DP-79	10 to 14	6/24/08	2.1	7.46	12.18	43	0.10	14.67	-92.6	cloudy
2-40-DP-80	10 to 14	6/9/08	1.9	6.32	2.274	9.95	0.50	20.39	104.1	clear
2-40-DP-81	10 to 14	6/6/08	3.0	6.35	0.637	13.7	0.11	15.40	37.6	clear
2-40-DP-82	10 to 14	6/13/08	2.0	6.72	0.67	93.2	1.09	15.93	83.6	cloudy
2-40-DP-83	10 to 14	6/3/08	0.4	6.75	2.336	90	1.76	16.66	-59.8	yellowish-cloudy
2-40-DP-84	10 to 14	5/30/08	1.4	6.59	0.659	9.16	3.12	16.62	135.3	clear
2-40-DP-85	10 to 14	7/2/08	2.0	7.04	0.687	16.96	0.05	15.99	-58.4	clear
2-40-DP-86	10 to 14	6/13/08	2.6	6.61	0.57	13.79	0.59	15.85	85	clear
2-40-DP-87	10 to 14	6/13/08	2.0	6.52	0.796	56.7	0.77	16.34	124.4	tan/clear
2-40-DP-88	10 to 14	6/13/08	3.1	6.42	0.76	48.60	0.40	15.96	109.6	clear
2-40-DP-89	10 to 14	6/13/08	2.3	6.71	0.753	63.8	0.38	15.16	101.6	clear
2-40-DP-90	10 to 14	6/6/08	3.2	6.33	0.704	25.1	0.09	15.04	41.4	clear
2-40-DP-91	10 to 14	6/4/08	1.4	6.53	0.999	33.9	0.21	15.48	-56.1	yellow/clear
2-40-DP-91	28 to 32	6/4/08	4.4	6.51	6.854	217	0.06	16.00	-116.2	cloudy
2-40-DP-91	35 to 39	6/4/08	2.1	6.74	0.943	279	0.12	16.01	-59.4	brown/cloudy
2-40-DP-92	10 to 14	6/3/08	2.5	6.56	1.174	47.2	0.54	15.69	-84.6	cloudy
2-40-DP-93	10 to 14	7/8/08	3.7	7.35	0.98	23	0.07	16.39	-66.7	clear
2-40-DP-94	10 to 14	6/30/08	1.3	6.96	0.815	23.7	0.31	16.96	-22.1	clear/yellowish
2-40-DP-95	10 to 14	6/9/08	2.1	6.51	1.09	174	0.48	17.5	77.4	clearing
2-40-DP-96	10 to 14	6/23/08	2.7	6.53	1.01	13.9	0.66	14.90	-115.7	cloudy
2-40-DP-97	10 to 14	7/7/08	3.1	7.08	0.187	19	0.03	14.45	22.2	clear
2-40-DP-98	10 to 14	6/12/08	3.0	6.64	0.574	83.5	0.41	17.10	80.4	clear
2-40-DP-99	10 to 14	6/12/08	3.0	6.96	0.59	45.5	0.38	15.83	65.1	clear
2-40-DP-100	10 to 14	6/6/08	1.4	6.40	1.189	113	0.13	15.74	108.9	clear
2-40-DP-101	10 to 14	6/4/08	0.3	6.82	0.734	187	1.76	15.89	11.9	clearing
2-40-DP-102	10 to 14	5/30/08	0.7	6.47	0.566	8.36	2.26	16.04	-46.4	clear
2-40-DP-103	10 to 14	7/3/08	1.7	7.02	0.726	9.84	0.03	16.06	-20.4	clear
2-40-DP-104	10 to 14	7/7/08	5.6	7.28	0.255	17.01	0.04	15.46	12.9	clear
2-40-DP-105	10 to 14	6/11/08	1.5	6.96	1.442	44.8	0.73	16.52	126.8	brown/yellow
PL2-BF03A	8 to 18	7/24/08	4.0	7.47	0.263	6.63	0.03	18.42	54.4	clear
PL2-321A	8 to 18	7/21/08	1.2	7.25	0.597	17.0	0.26	15.26	106.7	clear
PL2-401A	8 to 18	7/24/08	1.5	7.32	0.461	7.18	0.04	17.29	-14.3	clear
PL2-410A	8 to 18	7/21/08	2.0	7.74	0.395	6.56	0.05	16.08	2.7	clear
PL2-420A	8 to 18	7/23/08	1.2	7.79	1.124	2.29	0.05	15.30	-21.7	clear
PL2-420B	35 to 45	10/23/08	3.0	5.25	6.088	10.85	0.11	16.23	-11.5	clear
PL2-420C	75.5 to 80.5	8/7/08	2.2	7.82	42.88	9.93	0.09	15.93	78.3	clear
PL2-425A	8 to 18	7/23/08	2.5	7.80	0.618	9.52	0.03	15.46	-64.4	clear
PL2-425B	40 to 45	8/6/08	2.7	7.38	7.123	6.49	0.05	16.32	90.2	clear
PL2-425C	77 to 82	8/6/08	4.0	6.92	32.08	6.43	0.08	16.33	119.2	clear
PL2-430A	8 to 18	7/22/08	2.5	7.40	0.562	3.69	0.04	16.01	-43.0	clear
PL2-435A	8 to 18	7/21/08	1.7	8.25	1.207	16.3	0.04	16.68	-72.0	clear
PL2-435B	40 to 45	8/7/08	3.0	8.60	0.800	18.6	0.08	15.87	33.5	clear
PL2-435C	79 to 84	8/11/08	2.5	6.89	15.13	1.29	0.01	16.11	75.5	clear
PL2-440A	8 to 18	7/24/08	2.5	5.05	3.182	8.40	0.04	15.14	177.1	clear

**Table 4: Summary of Data Gap Investigation Groundwater Sampling Field Parameter Results  
2-40 Area, Boeing Plant 2**

<b>Well or Probe Location</b>	<b>Screened Interval (ft)</b>	<b>Date</b>	<b>Gallons Purged</b>	<b>pH</b>	<b>Cond. (mS/cm)</b>	<b>Turbidity (NTU)</b>	<b>DO (mg/L)</b>	<b>Temp. (°C)</b>	<b>ORP (mV)</b>	<b>Appearance</b>
PL2-440B	40.5 to 45.5	8/11/08	3.1	6.39	0.833	2.65	0.01	16.33	-2.2	clear
PL2-440C	80 to 85	8/11/08	2.0	6.93	21.92	16.26	0.01	16.93	-25.6	clear
PL2-441A	8 to 18	7/21/08	2.0	7.66	0.292	8.86	0.06	15.45	21.4	clear
PL2-441BR	35 to 45	10/23/08	2.5	5.37	0.809	9.08	0.11	14.80	0.7	clear
PL2-441C	77 to 82	8/11/08	6.2	8.22	30.90	5.00	0.05	15.57	58.0	clear
PL2-442A	8 to 18	7/23/08	1.8	7.47	0.773	7.57	0.04	17.14	-73.7	clear
PL2-442B	35 to 45	10/23/08	2.7	5.73	3.413	8.05	0.16	17.03	-15.9	clear
PL2-442C	70.5 to 80.5	8/6/08	5.0	6.94	36.53	4.56	0.04	16.95	95.1	clear
PL2-443A	8 to 23	7/22/08	1.5	7.50	2.615	15.64	0.04	15.05	-7.3	clear
PL2-443B	35 to 45	10/23/08	2.5	6.86	8.562	7.98	0.13	16.12	45.9	clear
PL2-443C	70 to 75	8/7/08	2.1	7.79	41.35	10.40	0.10	15.96	90.0	clear
PL2-444A	10 to 25	7/23/08	2.0	7.17	0.560	5.57	0.04	16.37	-19.1	clear
PL2-445A	10 to 25	7/24/08	1.2	8.12	0.872	6.83	0.07	14.76	-15.7	clear
PL2-446A	8 to 18	7/22/08	1.0	7.50	0.709	5.95	0.04	16.00	-1.3	clear
PL2-447A	8 to 18	7/22/08	1.5	7.32	0.638	3.98	0.05	16.57	-63.8	clear
PL2-608A	6 to 21	8/11/08	2.5	7.73	0.710	2.85	0.16	14.92	42.0	clear
PL2-608B	40.5 to 45.5	8/11/08	3.3	8.09	0.463	13.56	0.06	14.93	2.8	clear
PL2-608C	79 to 84	8/11/08	1.9	8.20	28.61	5.50	0.06	14.73	65.3	clear

**Table 5: Summary of Data Gap Investigation Groundwater Sampling Field Parameter Results  
2-31 Area, Boeing Plant 2**

Well or Probe Location	Screened Interval (ft)	Date	Gallons Purged	pH	Cond. (mS/cm)	Turbidity (NTU)	DO (mg/L)	Temp. (°C)	ORP (mV)	Appearance
2-31-DP-01	10 - 14	9/16/09	3.6	7.06	0.239	45.9	0.18	17.63	58.0	Clearing
2-31-DP-02	10 - 14	9/24/09	1.8	7.91	0.537	8.16	0.23	20.54	42.1	Clear
2-31-DP-02	40 - 44	9/24/09	5.8	7.75	1.188	164	0.23	17.94	-99.9	Cloudy
2-31-DP-03	10 - 14	9/1/09	1.8	5.71	0.633	27.0	0.65	19.68	-6.5	Clear
2-31-DP-03	40 - 44	9/1/09	2.8	7.15	0.477	218	0.13	19.23	-58	Cloudy
2-31-DP-04	10 - 14	8/31/09	4.8	7.86	1.149	27.9	0.23	19.51	-31.9	Clearing
2-31-DP-04	40 - 44	8/31/09	5.3	8.21	0.698	188	0.08	18.82	-77.2	Cloudy
2-31-DP-05	10 - 14	9/2/09	3.2	8.92	0.483	32.3	0.14	20.63	-54.7	Cloudy
2-31-DP-05	40 - 44	9/2/09	1.8	7.54	0.587	172	0.14	22.40	-92.1	Cloudy
2-31-DP-06	10 - 14	9/1/09	1.2	7.06	0.454	8.86	0.58	20.86	13.6	Clear
2-31-DP-06	40 - 44	9/1/09	3.3	7.35	0.680	642	0.14	18.80	-63.4	Cloudy
2-31-DP-07	10 - 14	9/3/09	2.4	7.68	1.109	23.7	0.47	21.01	-44.1	Clear
2-31-DP-07	40 - 44	9/3/09	2.2	7.96	0.631	187	0.17	20.58	-85.8	Cloudy
2-31-DP-08	10 - 14	9/14/09	2.8	8.91	0.493	16.3	0.12	17.39	-62.9	Clear
2-31-DP-08	40 - 44	9/14/09	4.6	10.17	4.589	44.1	0.08	17.23	-89.9	Clearing
2-31-DP-09	12 - 16	9/14/09	1.8	10.18	0.533	27.1	0.15	17.00	-66.2	Clear
2-31-DP-09	40 - 44	9/14/09	4.0	10.13	1.835	715	0.15	17.59	-52.7	Clearing
2-31-DP-10	10 - 14	9/11/09	1.2	7.76	0.685	31.0	0.22	17.78	-19.4	Clear
2-31-DP-10	40 - 44	9/11/09	3.0	6.30	0.685	680	0.19	20.47	-13.7	Cloudy, Yellow
2-31-DP-11	10 - 14	9/2/09	3.2	7.72	0.766	24.1	0.10	18.87	-61.8	Clear
2-31-DP-11	40 - 44	9/2/09	4.1	7.92	0.833	1206	0.11	18.52	-76.3	Cloudy
2-31-DP-12	10 - 14	9/11/09	1.8	7.24	8.409	6.97	0.48	15.20	108.7	Clear
2-31-DP-12	40 - 44	9/11/09	2.6	8.58	22.31	91.7	0.14	16.20	-70.9	Clearing
2-31-DP-13	10 - 14	9/21/09	2.4	7.00	0.514	9.62	0.02	19.80	37.9	Clear, Pale Yellow
2-31-DP-14	12 - 16	9/21/09	1.0	7.04	0.323	16.7	0.02	18.79	45.3	Clear
2-31-DP-15	10 - 14	9/15/09	1.8	9.14	0.796	8.68	0.20	24.08	-54.4	Clear
2-31-DP-16	10 - 14	9/10/09	2.8	9.22	0.277	18.9	0.10	17.68	0.4	Clear
2-31-DP-17	10 - 14	9/10/09	1.6	9.31	0.546	17.4	0.21	17.15	-55.0	Clear
2-31-DP-18	10 - 14	9/10/09	3.2	8.56	0.258	25.4	0.09	16.18	-4.3	Clear
2-31-DP-19	10 - 14	9/24/09	2.8	7.73	0.191	16.8	0.21	16.13	-71.1	Clear
2-31-DP-20	10 - 14	9/21/09	2.9	6.96	0.605	10.61	0.18	14.40	-36.0	Clear
2-31-DP-21	10 - 14	9/15/09	1.4	10.19	0.560	14.2	0.11	18.41	46.8	Clear
2-31-DP-22	10 - 14	9/10/09	1.8	7.89	0.349	16.0	0.28	17.46	81.2	Clear
2-31-DP-23	10 - 14	9/15/09	2.7	10.18	0.520	15.8	0.15	18.03	2.2	Clear
2-31-DP-24	12 - 16	9/3/09	3.0	9.39	0.812	59.4	0.21	21.95	-46.5	Clearing
2-31-DP-25	10 - 14	9/9/09	3.1	9.28	0.508	39.9	0.13	20.33	-7.6	Clear
2-31-DP-26	10 - 14	9/9/09	3.3	9.01	1.620	17.1	0.24	20.36	-19.0	Yellow
2-31-DP-27	10 - 14	9/15/09	1.6	9.49	0.748	8.42	0.21	20.23	-0.2	Clear
2-31-DP-28	10 - 14	9/1/09	4.8	6.48	0.695	25.1	0.33	21.21	14	Clear
2-31-DP-29	10 - 14	9/8/09	3.4	7.97	0.659	26.8	0.26	19.56	-34.1	Clear
2-31-DP-30	10 - 14	9/15/09	3.2	8.37	0.536	27.9	0.16	22.76	-46.9	Clear
2-31-DP-31	10 - 14	8/31/09	3.7	7.68	0.847	9.96	0.15	19.28	-14.5	Clear



**Table 5: Summary of Data Gap Investigation Groundwater Sampling Field Parameter Results  
2-31 Area, Boeing Plant 2**

<b>Well or Probe Location</b>	<b>Screened Interval (ft)</b>	<b>Date</b>	<b>Gallons Purged</b>	<b>pH</b>	<b>Cond. (mS/cm)</b>	<b>Turbidity (NTU)</b>	<b>DO (mg/L)</b>	<b>Temp. (°C)</b>	<b>ORP (mV)</b>	<b>Appearance</b>
2-31-DP-32	10 - 14	8/31/09	4.6	7.59	0.934	24.9	0.19	20.07	-4.7	Clear
2-31-DP-33	10 - 14	8/31/09	3.9	7.81	0.981	28.3	0.45	19.51	-24.3	Clear
2-31-DP-34	10 - 14	9/2/09	3.7	7.12	0.536	11.6	0.16	19.91	-59.6	Clear
2-31-DP-35	12 - 16	9/8/09	2.4	8.48	0.517	8.64	0.31	17.71	-28.9	Clear
2-31-DP-36	10 - 14	9/1/09	5.3	7.24	0.788	20.5	0.13	19.56	-44.5	Clear
2-31-DP-37	10 - 14	9/8/09	4.2	8.47	0.652	47.8	0.13	17.31	-83.8	Cloudy
2-31-DP-38	12 - 16	9/3/09	3.4	8.13	0.825	90.0	0.22	20.59	-39.3	Cloudy
2-31-DP-39	10 - 14	9/16/09	2.0	8.92	0.491	9.67	0.25	17.83	-20.5	Clear
2-31-DP-39	40 - 44	9/16/09	2.2	10.00	0.656	67.0	0.20	18.28	-50.4	Cloudy
2-31-DP-39	68 - 72	9/16/09	1.2	8.44	15.90	27.4	0.29	17.86	-92.7	Clear
2-31-DP-40	10 - 14	9/2/09	2.5	7.67	1.125	20.1	0.17	19.64	-51.2	Clear
2-31-DP-41	10 - 14	9/8/09	3.6	8.61	0.454	20.4	0.10	17.81	-60.9	Clear
2-31-DP-42	10 - 14	9/14/09	2.6	9.00	0.448	9.37	0.12	17.76	31.7	Clear
2-31-DP-43	10 - 14	9/8/09	4.0	8.46	0.675	38.7	0.11	16.57	15.3	Clear
2-31-DP-44	10 - 14	9/21/09	1.7	7.03	1.338	0.27	0.08	15.64	128.8	Clear
2-31-DP-45	10 - 14	9/9/09	1.8	8.84	0.553	2.92	0.08	21.05	-52.5	Clear
2-31-DP-46	10 - 14	9/9/09	2.3	9.23	0.760	9.18	0.07	15.61	-38.0	Clear
2-31-DP-47	10 - 14	9/8/09	3.8	8.57	0.523	84.3	0.23	18.66	-33.7	Clearing
2-31-DP-48	10 - 14	9/3/09	2.1	8.18	0.675	40.5	0.23	19.06	-20.0	Clear
2-31-DP-49	10 - 14	9/8/09	3.6	8.68	0.512	9.84	0.38	19.41	-31.0	Clearing
2-31-DP-50	10 - 14	9/9/09	3.5	7.21	4.488	9.76	0.43	16.08	156.0	Clear
PL2-233A	10 - 25	10/6/09	4.2	6.68	0.862	6.1	0.78	17.30	-130.0	Clear
PL2-501A	10 - 20	10/2/09	3.5	6.83	0.392	1.73	0.19	18.85	-11.5	Clear, Yellow
PL2-501B	40 - 50	10/2/09	2.5	7.18	0.730	2.44	0.15	17.84	-28.6	Clear
PL2-501C	68 - 78	10/2/09	2.6	7.38	33.37	6.96	0.13	17.52	-40.1	Clear
PL2-502A	8 - 18	10/1/09	1.7	6.31	59.0	4.35	0.26	17.10	-87	Clear
PL2-503A	7 - 17.5	10/1/09	2.0	6.63	51.3	2.19	0.18	24.50	-99	Clear
PL2-504A	4.2 - 14.7	10/5/09	0.8	9.90	0.262	5.98	0.34	19.10	91.5	Clear
PL2-505A	9 - 24.5	10/5/09	1.3	10.38	0.655	7.91	0.32	22.59	-34.7	Clear
PL2-507A	8 - 18	10/6/09	1.8	5.85	20.9	9.1	5.88	19.3	58.0	Clear
PL2-507B	35 - 45	10/6/09	3.6	6.77	57.9	49.3	0.74	15.2	-128	Clearing
PL2-507C	64 - 74	10/7/09	1.8	7.15	1,510	5.74	0.92	15.1	-174	Clear
PL2-509A	8 - 18	10/5/09	2.5	9.28	0.884	9.85	0.27	19.66	-11.4	Clear, Slightly Yellow
PL2-509B	40 - 50	10/5/09	3.7	10.13	0.763	9.16	0.18	18.25	-28.0	Clear, Colorless

**Table 6: Summary of Data Gap Investigation Groundwater Sampling Field Parameter Results  
2-10 Area, Boeing Plant 2**

Well or Probe Location	Screened Interval (ft)	Date	Gallons Purged	pH	Cond. (mS/cm)	Turbidity (NTU)	DO (mg/L)	Temp. (°C)	ORP (mV)	Appearance
2-10-DP-01	10 - 14	1/27/10	2.6	6.43	0.427	23.2	0.36	13.73	22.5	Clear
2-10-DP-02	10 - 14	2/1/10	5.0	6.52	0.922	9.63	0.11	15.07	-97.9	Clear
2-10-DP-03	10 - 14	1/29/10	1.6	6.37	12.05	8.19	0.48	13.57	-11.6	Clear
2-10-DP-04	10 - 14	2/4/10	4.5	6.75	0.228	8.62	0.36	23.26	-81.9	Clear
2-10-DP-05	10 - 14	2/3/10	2.5	6.50	0.324	9.64	0.14	12.96	-30.1	Clear
2-10-DP-06	10 - 14	2/3/10	4.5	6.57	0.794	15.1	0.16	14.48	-43.8	Clear, yellow
2-10-DP-07	10 - 14	2/2/10	2.7	7.47	0.605	4.74	0.13	15.40	-88.0	Clear
2-10-DP-08	10 - 14	2/2/10	2.2	6.43	0.642	7.80	0.31	14.59	67.6	Clear
2-10-DP-09	10 - 14	2/3/10	2.7	6.83	0.298	9.31	0.14	14.32	-27.0	Clear
2-10-DP-10	10 - 14	2/2/10	2.6	6.41	1.227	8.08	0.19	14.26	-11.3	Clear
2-10-DP-11	10 - 14	2/3/10	4.0	6.71	0.216	13.6	0.20	13.80	-31.9	Clear
2-10-DP-12	10 - 14	1/26/10	3.6	6.66	0.704	9.96	0.33	14.34	-130.9	Clear
2-10-DP-13	10 - 14	1/26/10	1.0	6.61	0.790	10.26	2.58	10.85	-73.7	Clear
2-10-DP-14	10 - 14	1/27/10	3.7	6.23	0.125	21.8	0.29	10.67	3.1	Clear
2-10-DP-15	10 - 14	2/2/10	2.6	6.21	0.211	14.9	0.15	13.35	18.1	Clear
2-10-DP-16	10 - 14	2/2/10	4.5	7.11	0.952	24.5	0.10	14.15	-93.2	Clear, yellowish
2-10-DP-17	10 - 14	1/27/10	3.0	6.74	0.573	31.9	0.33	15.07	-68.6	Clear, yellow
2-10-DP-18	10 - 14	1/27/10	3.5	6.85	0.394	17.2	0.32	14.78	-87.7	Clear
2-10-DP-19	10 - 14	1/27/10	5.0	7.58	0.354	38.8	0.22	12.90	-175.3	Clear, yellow
2-10-DP-20	10 - 14	1/27/10	4.0	7.45	0.096	17.0	0.28	10.92	-96.8	Clear
2-10-DP-21	10 - 14	2/2/10	4.5	6.56	0.864	11.6	0.09	16.91	-64.5	Clear
2-10-DP-22	10 - 14	2/15/10	3.5	6.98	0.450	35.7	0.26	18.26	52.5	Clear
2-10-DP-23	10 - 14	2/2/10	4.0	6.74	0.927	27.7	0.12	15.77	-45.4	Clear, yellow
2-10-DP-24	10 - 14	1/28/10	2.5	6.91	0.959	36.7	0.22	15.65	-109.8	Clear, reddish
2-10-DP-25	10 - 14	2/1/10	2.5	6.83	1.981	26.7	0.36	12.00	-69.6	Clear, reddish
2-10-DP-26	10 - 14	2/1/10	2.0	6.54	0.910	27.2	0.38	12.29	-76.6	Clear
2-10-DP-27	10 - 14	1/28/10	2.6	6.62	0.639	9.52	0.41	13.95	-106.8	Clear
2-10-DP-28	10 - 14	2/1/10	2.5	6.43	0.420	9.09	0.14	14.31	-26.9	Clear
2-10-DP-29	10 - 14	2/8/10	2.5	6.97	0.562	85.2	0.43	17.81	98.2	Clear, yellow
2-10-DP-30	10 - 14	2/15/10	2.2	7.03	0.406	7.17	0.21	13.46	41.3	Clear
2-10-DP-31	10 - 14	2/8/10	2.0	6.85	1.018	35.5	0.49	18.38	89.1	Clear, reddish
2-10-DP-32	10 - 14	2/10/10	4.2	6.97	0.909	41.4	0.12	18.29	9.0	Clear, yellow
2-10-DP-33	10 - 14	2/15/10	2.0	7.25	2.376	26.7	0.26	18.77	-29.0	Clear, yellow
2-10-DP-34	12 - 16	2/11/10	2.6	7.03	0.748	29.3	0.06	18.89	-1.4	Clear, yellow
2-10-DP-35	10 - 14	2/11/10	3.5	6.50	0.690	17.7	0.27	19.62	37.7	Clear
2-10-DP-36	10 - 14	2/11/10	2.6	6.80	0.435	9.89	0.23	19.27	11.5	Clear
2-10-DP-37	10 - 14	2/11/10	3.6	6.87	0.569	18.0	0.08	19.21	16.0	Clear
2-10-DP-37	41 - 45	2/11/10	7.2	6.68	0.935	41.0	0.04	17.59	-22.5	Clear
2-10-DP-38	10 - 14	2/13/10	4.0	6.63	1.793	9.69	0.10	19.67	-67.7	Clear
2-10-DP-38	41 - 45	2/13/10	3.6	6.87	1.651	148	0.08	19.15	-12.8	Cloudy, gray
2-10-DP-39	10 - 14	2/9/10	3.3	6.71	0.770	9.83	0.11	18.93	-91.4	Clear
2-10-DP-39	41 - 45	2/10/10	7.7	6.66	0.599	16.30	0.07	17.76	-49.2	Clear

**Table 6: Summary of Data Gap Investigation Groundwater Sampling Field Parameter Results  
2-10 Area, Boeing Plant 2**

Well or Probe Location	Screened Interval (ft)	Date	Gallons Purged	pH	Cond. (mS/cm)	Turbidity (NTU)	DO (mg/L)	Temp. (°C)	ORP (mV)	Appearance
2-10-DP-40	10 - 14	2/12/10	1.5	7.14	0.694	12.2	0.17	19.88	-59.5	Clear
2-10-DP-40	41 - 45	2/12/10	6.5	6.73	4.380	126	0.09	17.17	-43.0	Cloudy, gray
2-10-DP-41	10 - 14	2/12/10	4.1	6.62	0.679	9.32	0.06	20.07	-77.1	Clear
2-10-DP-41	41 - 45	2/12/10	3.7	6.80	2.623	110	0.11	19.37	-30.8	Cloudy, gray
2-10-DP-42	10 - 14	2/9/10	3.0	6.42	0.789	11.5	0.19	19.59	53.0	Clear
2-10-DP-42	41 - 45	2/10/10	7.5	6.55	1.623	173	0.15	17.93	68.0	Cloudy
2-10-DP-43	10 - 14	2/9/10	2.8	6.61	1.877	41.5	0.11	19.46	53.1	Clear
2-10-DP-44	10 - 14	2/23/10	2.8	7.16	0.638	8.79	0.43	18.42	57.0	Clear
2-10-DP-45	10 - 14	2/12/10	2.1	7.05	0.588	23.9	0.11	19.32	-55.8	Clear
2-10-DP-45	41 - 45	2/13/10	8.3	6.92	9.835	104.2	0.08	17.81	-9.6	Cloudy
2-10-DP-46	10 - 14	1/22/10	3.5	6.37	0.849	26.2	0.29	14.44	-54.0	Clear
2-10-DP-47	10 - 14	1/22/10	2.5	6.60	0.455	32.0	0.43	14.30	-109.5	Clear
2-10-DP-48	10 - 14	1/22/10	3.0	6.56	1.080	7.81	0.43	12.81	-57.8	Clear
2-10-DP-49	10 - 14	1/22/10	2.7	6.59	0.532	25.0	0.30	15.26	-80.8	Clear
2-10-DP-50	10 - 14	1/29/10	5.0	6.59	0.284	61.2	0.22	14.81	0.9	Clearing
2-10-DP-51	10 - 14	1/22/10	2.5	6.59	0.582	21.4	0.26	14.59	-100.8	Yellowish, clear
2-10-DP-52	10 - 14	1/22/10	4.0	6.37	0.673	22.8	0.24	14.68	-104.2	Clear
2-10-DP-53	10 - 14	1/29/10	2.2	6.47	0.118	37.9	0.79	14.89	14.5	Clear
2-10-DP-54	10 - 14	1/29/10	3.2	6.45	0.478	18.9	0.25	14.33	-65.8	Clear
2-10-DP-55	10 - 14	1/29/10	3.0	6.55	0.384	22.5	0.43	14.39	-20.5	Clear
2-10-DP-56	10 - 14	1/29/10	3.5	6.43	0.687	28.8	0.44	14.77	-7.7	Clear
2-10-DP-57	10 - 14	2/1/10	2.5	6.65	1.262	8.79	0.11	17.91	-105.1	Clear
2-10-DP-58	10 - 14	2/1/10	3.0	6.61	0.834	8.90	0.10	15.40	-108.6	Clear
2-10-DP-59	10 - 14	2/1/10	1.6	6.41	0.830	6.70	0.11	15.41	-60.7	Clear
2-10-DP-60	10 - 14	2/1/10	2.5	6.55	1.215	7.98	0.09	15.99	-83.0	Clear
2-10-DP-61	10 - 14	2/3/10	4.2	6.57	0.392	15.4	0.18	14.64	-42.9	Clear
2-10-DP-62	10 - 14	2/4/10	3.0	6.27	0.179	19.6	0.13	15.00	-5.5	Clear
2-10-DP-63	10 - 14	2/3/10	3.2	6.65	0.142	11.6	0.23	14.50	32.2	Clear
2-10-DP-64	10 - 14	2/4/10	6.0	6.85	0.132	49.2	0.10	14.60	-8.8	Cloudy
2-10-DP-65	10 - 14	2/3/10	4.5	6.66	0.791	13.0	0.12	13.71	-9.9	Clear
2-10-DP-66	10 - 14	2/4/10	5.0	6.26	0.421	6.94	0.25	17.44	20.6	Clear
2-10-DP-67	10 - 14	2/4/10	3.0	5.88	0.391	9.31	0.16	14.18	17.1	Clear
2-10-DP-68	10 - 14	2/4/10	3.6	6.43	0.860	9.54	0.11	17.50	-18.6	Clear
2-10-DP-69	10 - 14	1/28/10	2.5	6.58	0.507	6.12	2.74	15.31	37.5	Clear
2-10-DP-70	10 - 14	1/5/10	4.5	6.74	0.415	25.7	0.21	15.66	-94.6	Clear
2-10-DP-71	10 - 14	1/6/10	2.5	6.46	0.501	2.10	0.43	15.40	-24.9	Clear
2-10-DP-72	10 - 14	1/5/10	2.5	6.09	0.192	3.11	1.41	14.30	42.5	Clear, bubbly
2-10-DP-73	10 - 14	1/6/10	2.5	6.62	0.506	8.76	0.43	14.12	-75.9	Clear
2-10-DP-74	10 - 14	1/5/10	3.2	6.64	0.464	3.92	0.39	14.76	-86.8	Clear
2-10-DP-75	10 - 14	1/5/10	4.0	6.60	0.380	9.85	0.70	13.01	-61.3	Clear
2-10-DP-76	10 - 14	1/5/10	3.8	6.63	0.503	17.0	0.39	15.11	-84.7	Clear
2-10-DP-77	10 - 14	1/4/10	3.0	6.62	0.619	8.73	0.84	13.98	-85.5	Clear

**Table 6: Summary of Data Gap Investigation Groundwater Sampling Field Parameter Results  
2-10 Area, Boeing Plant 2**

Well or Probe Location	Screened Interval (ft)	Date	Gallons Purged	pH	Cond. (mS/cm)	Turbidity (NTU)	DO (mg/L)	Temp. (°C)	ORP (mV)	Appearance
2-10-DP-78	10 - 14	1/4/10	2.5	6.70	0.338	8.65	0.50	15.45	-84.0	Clear
2-10-DP-79	10 - 14	1/28/10	4.2	6.55	0.426	45.1	2.96	14.58	-1.1	Cloudy
2-10-DP-80	10 - 14	1/28/10	1.5	6.52	1.239	7.95	4.88	12.38	99.0	Clear
2-10-DP-81	12 - 16	2/17/10	4.5	6.95	0.684	26.1	4.32	15.29	35.4	Clear
2-10-DP-82	10 - 14	1/28/10	4.5	6.87	1.541	17.3	4.69	12.36	18.4	Clear
2-10-DP-83	10 - 14	2/9/10	4.7	6.57	0.811	45.9	0.13	19.63	-43.6	Clear
2-10-DP-84	10 - 14	2/9/10	3.7	6.40	0.516	18.3	0.06	19.28	-31.5	Clear
2-10-DP-85	10 - 14	2/9/10	3.5	6.66	1.294	29.9	0.12	19.54	55.9	Clear, yellow
2-10-DP-86	10 - 14	2/15/10	4.6	6.73	0.608	21.5	0.21	19.23	-71.3	Clear
2-10-DP-87	10 - 14	2/15/10	2.9	6.77	0.468	9.76	0.26	18.94	69.1	Clear
2-10-DP-88	10 - 14	2/15/10	3.1	6.73	0.700	48.0	0.26	20.52	60.8	Clear
2-10-DP-89	10 - 14	2/15/10	3.5	6.97	0.569	9.42	0.30	19.41	54.4	Clear
2-10-DP-90	10 - 14	1/21/10	2.8	6.27	0.543	9.97	2.36	19.07	-0.7	Clear
2-10-DP-90	41 - 45	1/21/10	6.5	6.70	3.163	237	0.29	17.95	-141.1	Cloudy
2-10-DP-91	10 - 14	1/20/10	3.3	6.56	6.677	9.83	0.51	18.86	-77.7	Clear
2-10-DP-91	41 - 45	1/20/10	5.0	6.78	3.865	249	0.34	19.11	-148.1	Cloudy
2-10-DP-92	10 - 14	2/17/10	4.0	6.93	0.495	24.8	0.47	18.80	5.3	Clear
2-10-DP-92	41 - 45	2/17/10	4.2	6.72	0.598	27.9	0.20	18.47	-97.2	Clear
2-10-DP-93	10 - 14	2/17/10	6.2	7.00	0.161	29.7	0.31	18.51	-8.4	Clear
2-10-DP-93	41 - 45	2/18/10	6.1	6.95	4.793	27.2	0.26	17.05	56.9	Clear
2-10-DP-94	10 - 14	2/16/10	2.5	6.57	0.542	34.3	0.16	19.83	-70.3	Cloudy
2-10-DP-94	41 - 45	2/16/10	2.6	6.56	0.533	81.4	0.08	19.78	-56.0	Clear
2-10-DP-95	12 - 16	2/19/10	6.0	7.09	0.371	50.7	0.32	19.23	-71.4	Clearing
2-10-DP-95	41 - 45	2/22/10	4.0	6.80	3.241	51.5	0.06	19.26	-66.5	Clearing
2-10-DP-96	10 - 14	2/19/10	5.5	6.95	0.219	12.9	0.29	19.41	-30.4	Clear
2-10-DP-96	41 - 45	2/19/10	6.9	7.08	1.891	40.2	0.25	19.01	-95.7	Clearing
2-10-DP-97	10 - 14	1/20/10	2.5	6.90	0.596	9.53	0.52	18.56	-159.9	Clear
2-10-DP-97	41 - 45	1/20/10	6.0	6.69	6.957	95.7	0.22	17.97	-114.3	Cloudy
2-10-DP-98	10 - 14	1/19/10	2.5	6.95	0.640	14.0	0.64	18.87	-91.4	Clear
2-10-DP-98	41 - 45	1/19/10	7.5	6.83	10.99	33.9	0.17	17.97	-159.8	Clear
2-10-DP-99	10 - 14	1/19/10	2.8	6.84	0.525	9.46	0.42	18.93	38.7	Clear
2-10-DP-99	41 - 45	1/19/10	4.5	6.77	8.901	219	0.26	18.26	-145.0	Cloudy
2-10-DP-100	10 - 14	1/18/10	3.2	6.74	0.955	9.00	0.50	19.47	-54.7	Clear
2-10-DP-100	41 - 45	1/18/10	7.0	6.74	9.861	7.91	0.24	19.12	-126.3	Clear
2-10-DP-101	10 - 14	2/22/10	4.0	7.15	0.674	8.99	0.27	19.96	51.4	Clear
2-10-DP-101	41 - 45	2/22/10	6.5	7.17	7.564	7.98	0.19	19.40	41.4	Clear
2-10-DP-102	10 - 14	2/18/10	2.5	7.08	1.008	8.22	0.32	19.78	44.3	Clear
2-10-DP-102	41 - 45	2/18/10	9.0	7.03	13.32	30.6	0.25	19.97	-1.6	Clear
2-10-DP-103	10 - 14	2/16/10	2.0	6.58	0.563	7.37	0.17	19.88	-76.6	Clear
2-10-DP-104	10 - 14	2/23/10	3.6	7.30	0.801	7.27	0.23	14.85	50.3	Clear
2-10-DP-105	10 - 14	2/16/10	1.6	7.07	0.562	15.8	0.13	21.30	-30.3	Clear
2-10-DP-106	10 - 14	2/22/10	3.5	6.81	0.528	9.87	0.37	18.26	81.8	Clear
2-10-DP-107	10 - 14	1/21/10	3.0	6.74	0.709	9.62	0.37	19.31	83.1	Clear

**Table 6: Summary of Data Gap Investigation Groundwater Sampling Field Parameter Results  
2-10 Area, Boeing Plant 2**

Well or Probe Location	Screened Interval (ft)	Date	Gallons Purged	pH	Cond. (mS/cm)	Turbidity (NTU)	DO (mg/L)	Temp. (°C)	ORP (mV)	Appearance
2-10-DP-108	10 - 14	1/21/10	3.0	6.48	0.950	14.2	2.69	20.21	35.0	Clear
2-10-DP-109	10 - 14	2/16/10	4.0	6.57	0.494	19.0	0.26	19.41	46.9	Clear
2-10-DP-110	10 - 14	1/21/10	2.0	6.81	0.523	9.48	0.37	20.80	-103.4	Clear
2-10-DP-111	10 - 14	1/4/10	5.0	6.87	0.460	53.0	0.55	14.11	-91.0	Clearing
2-10-DP-112	10 - 14	1/4/10	2.6	6.52	0.536	22.7	0.90	14.95	-80.4	Clear
PL2-201A	9 - 19	3/2/10	1.8	6.90	0.607	3.12	0.23	15.87	70.5	Clear
PL2-201B	35.5 - 45.5	3/2/10	2.0	7.28	1.576	4.96	0.20	14.92	-2.1	Clear
PL2-201C	65.5 - 75.5	3/2/10	4.0	6.95	4.865	11.6	0.16	14.56	7.3	Clear
PL2-202A	8 - 18	3/3/10	1.5	6.61	0.779	1.08	0.13	15.19	10.4	Clear
PL2-203A	9 - 19	3/3/10	4.0	7.00	0.582	2.94	0.14	14.01	32.7	Clear
PL2-204A	7.5 - 17.5	3/3/10	4.0	6.68	0.388	9.02	0.13	13.68	20.6	Clear
PL2-206A	7.5 - 17.5	3/17/10	1.2	7.28	0.305	8.77	0.45	15.07	35.4	Clear
PL2-207A	8 - 18	3/15/10	4.0	7.15	0.629	0.00	0.57	16.71	-55.3	Clear
PL2-208A	7 - 16.5	3/16/10	3.0	6.84	0.448	21.3	0.62	15.07	15.4	Clearing
PL2-209A	8 - 17.5	3/17/10	4.5	8.08	1.554	0.34	0.25	18.32	-87.1	Clear
PL2-209B	40 - 55	3/17/10	1.9	7.82	19.17	0.69	0.29	17.45	-74.5	Clear
PL2-210A	6 - 16	3/4/10	1.8	7.00	0.525	1.75	0.10	18.92	208.6	Clear, colorless
PL2-211A	9 - 19	3/3/10	2.5	7.08	0.218	24.9	0.14	15.34	8.5	Clear
PL2-212A	6 - 16	3/17/10	2.2	8.50	1.421	3.12	0.29	19.72	-18.5	Clear, tea-like
PL2-213A	15 - 30	3/8/10	2.3	6.93	0.342	9.67	0.28	18.73	-101.9	Clear
PL2-213B	25.7 - 30.2	3/8/10	3.0	6.96	0.436	29.0	0.43	18.57	-86.0	Clear
PL2-214A	15 - 30	3/5/10	1.5	7.04	0.573	1.84	0.74	17.55	-100.7	Clear
PL2-214B	45 - 60	3/5/10	3.0	7.21	26.96	2.66	0.68	17.25	-103.1	Clear
PL2-214C	75.5 - 80	3/5/10	2.0	7.23	41.34	7.92	0.83	17.01	-111.1	Clear
PL2-216A	15 - 30	3/5/10	3.7	7.34	0.534	2.22	0.59	18.25	-88.2	Clear
PL2-217A	15 - 30	3/4/10	3.0	7.15	0.556	0.98	0.11	18.38	-108.0	Clear
PL2-218A	15 - 30	3/18/10	1.8	8.25	0.628	0.67	0.25	18.82	-73.2	Clear
PL2-218B	45 - 60	3/18/10	3.2	6.80	29.66	0.71	0.23	17.05	-101.9	Clear
PL2-222A	9 - 19	3/15/10	1.5	7.08	0.986	0.08	0.63	15.36	4.4	Clear
PL2-223A	14 - 19	3/15/10	2.5	7.15	0.729	0.24	0.45	17.28	-41.6	Clear
PL2-224A	10 - 20	3/2/10	3.0	7.16	0.496	17.2	0.14	16.28	-6.5	Clear
PL2-227A	6 - 16.5	3/16/10	2.0	7.15	0.457	0.22	4.85	14.87	28.5	Clear
PL2-227B	35 - 45	3/16/10	3.0	7.62	0.970	2.09	0.58	15.46	-21.8	Clear
PL2-227C	74.5 - 84.5	3/16/10	4.5	8.54	39.80	5.19	0.22	15.17	-76.5	Clear
PL2-230A	5 - 20	3/9/10	2.4	7.47	2.276	3.01	0.32	15.23	-33.8	Clear
PL2-231A	5 - 20	3/9/10	2.0	6.99	0.533	25.4	0.43	16.99	-54.9	Clear
PL2-232A	5 - 20	3/9/10	5.0	7.34	0.400	4.35	0.28	20.10	-82.2	Clear
PL2-235A	8 - 18	3/10/10	3.7	7.72	0.549	3.60	0.35	19.06	-68.7	Clear
PL2-240A	8 - 18	3/4/10	1.5	7.15	0.548	1.17	0.12	18.60	204.9	Clear, colorless
PL2-241A	7.5 - 22.5	3/15/10	2.2	7.42	0.551	2.82	0.72	14.54	0.0	Clear
PL2-242A	7.5 - 22.5	3/15/10	2.0	7.17	0.361	4.36	0.49	16.47	16.2	Clear

**Table 6: Summary of Data Gap Investigation Groundwater Sampling Field Parameter Results  
2-10 Area, Boeing Plant 2**

Well or Probe Location	Screened Interval (ft)	Date	Gallons Purged	pH	Cond. (mS/cm)	Turbidity (NTU)	DO (mg/L)	Temp. (°C)	ORP (mV)	Appearance
PL2-243A	7.5 - 22.5	3/15/10	2.3	7.15	0.282	8.05	0.73	15.72	23.3	Clear
PL2-244A	15 - 20	3/11/10	2.0	7.50	0.681	6.22	0.20	18.97	-97.5	Clear
PL2-245A	15 - 20	3/18/10	2.5	8.21	0.597	2.67	0.40	19.52	-77.4	Clear
PL2-246A	15 - 20	3/11/10	2.0	7.46	0.630	2.77	0.28	18.38	-89.6	Clear
PL2-247A	15 - 20	3/18/10	2.5	8.43	0.596	0.46	0.27	18.77	-79.6	Clear
PL2-248A	15 - 20	3/11/10	2.0	8.70	0.460	5.69	0.32	18.82	-25.5	Clear
PL2-249A	15 - 20	3/12/10	2.3	7.07	0.373	2.65	0.29	18.60	-72.8	Clear
PL2-252A	13.5 - 18.5	3/8/10	1.4	6.85	0.827	2.63	0.49	18.82	-83.1	Clear
PL2-253A	12 - 17	3/12/10	2.5	7.09	0.649	2.54	0.32	18.87	-46.8	Clear
PL2-254A	13.5 - 18.5	3/8/10	2.0	6.92	0.323	2.76	0.29	19.37	-99.5	Clear
PL2-255A	12.5 - 17.5	3/12/10	3.5	7.97	0.472	3.60	0.33	19.55	-15.9	Clear
PL2-256A	13 - 18	3/12/10	2.0	7.06	0.289	2.65	0.38	18.38	-48.5	Clear
PL2-257A	13 - 18	3/9/10	2.3	7.78	0.983	3.03	0.40	18.63	4.9	Clear
PL2-258A	8 - 23	3/10/10	2.5	7.82	0.643	9.28	0.36	17.46	-70.2	Clear
PL2-258B	40 - 50	3/10/10	2.3	7.26	24.38	4.36	0.29	16.30	-95.2	Clear
PL2-258C	92 - 102	3/10/10	2.2	6.80	34.99	3.51	0.25	16.45	-5.0	Clear
PL2-259B	40 - 50	3/11/10	2.9	9.12	1.027	3.14	0.31	16.61	-57.6	Clear
PL2-260A	8 - 18	3/3/10	3.0	6.58	0.555	4.06	0.15	13.89	19.8	Clear
PL2-261B	40 - 50	3/8/10	3.0	6.89	21.58	1.84	0.81	18.12	-74.9	Clear
PL2-262B	40 - 50	3/9/10	3.5	7.49	2.778	2.92	0.27	16.96	-102.4	Clear
PL2-266A	26 - 30.2	3/8/10	2.2	6.97	0.345	4.37	0.36	18.40	-102.8	Clear
PL2-267A	26 - 30.5	3/5/10	2.5	6.95	0.484	1.23	0.83	17.54	-104.8	Clear, colorless
PL2-268AR	30 - 34.5	3/10/10	2.9	7.43	0.887	4.13	0.26	17.58	-64.6	Clear
PL2-269A	31 - 35.7	3/11/10	2.5	7.25	0.814	2.21	0.34	17.60	-48.0	Clear
PL2-271A	20.2 - 29.7	3/4/10	1.0	7.06	0.609	1.41	0.12	19.06	205.7	Clear
PL2-272A	31.3 - 35.8	3/4/10	2.1	7.41	0.531	1.52	0.30	17.98	-90.5	Clear
PL2-BF02A	--	3/4/10	5.0	6.67	0.356	25.3	0.16	13.58	229.7	Clear, orange

**Table 7: Summary of Data Gap Investigation Groundwater Sampling Field Parameter Results**  
**North Area, Boeing Plant 2**

Well or Probe Location	Well or Probe Depth (ft)	Screened Interval	Date	Gallons Purged	pH	Cond. (mS/cm)	Turbidity (NTU)	DO (mg/L)	Temp. (°C)	ORP (mV)	Appearance
NA-DP-01	16.0	12 to 16	9/4/08	3.5	6.71	1.256	19.8	0.17	13.16	116	clear
NA-DP-02	14.0	10 to 14	9/4/08	1.5	6.60	3.454	9.84	0.14	12.98	109.2	clear
NA-DP-02	32.0	28 to 32	9/4/08	3.3	7.14	2.716	290	0.20	15.14	104	clear
NA-DP-03	14.0	10 to 14	9/3/08	3.0	6.58	8.018	2.01	0.20	13.96	145.5	cloudy
NA-DP-04	14.0	10 to 14	9/3/08	2.1	6.92	0.745	6.67	0.18	13.23	119.1	clear
NA-DP-05	14.0	10 to 14	9/8/08	2.6	6.29	2.308	10.09	0.21	14.21	192.1	yellow
NA-DP-06	14.0	10 to 14	9/4/08	2.8	7.27	0.595	9.71	0.17	16.27	21.6	cloudy
NA-DP-07	14.0	10 to 14	9/4/08	2.6	7.47	1.833	9.93	0.19	18.89	31.8	clear
NA-DP-08	14.0	10 to 14	9/2/08	1.5	7.45	0.701	7.33	0.05	15.32	-6.7	clearing
NA-DP-09	14.0	10 to 14	8/25/08	4.1	7.64	0.463	9.96	0.04	14.93	-13.7	cloudy
NA-DP-10	14.0	10 to 14	8/25/08	3.0	6.74	0.571	8.37	0.06	15.89	6.2	clear
NA-DP-11	16.0	12 to 16	8/25/08	4.2	6.75	0.495	122	0.04	14.61	-58.2	cloudy
NA-DP-12	14.0	10 to 14	8/28/08	2.5	6.60	0.380	9.38	0.07	16.70	42.4	clearing
NA-DP-13	14.0	10 to 14	8/25/08	3.2	6.52	0.526	16.76	0.08	16.12	-75.7	clearing
NA-DP-14	14.0	10 to 14	9/2/08	4.0	6.79	0.438	8.94	0.06	22.14	-25.9	clear
NA-DP-15	14.0	10 to 14	8/25/08	3.1	6.52	0.535	7.32	0.05	15.21	-1.2	clear
NA-DP-16	14.0	10 to 14	9/2/08	2.5	6.76	0.584	9.43	0.09	14.50	49.3	clear
NA-DP-17	14.0	10 to 14	8/26/08	5.0	7.33	0.584	5.78	0.03	16.78	32.2	clear
NA-DP-18	14.0	10 to 14	8/26/08	4.2	7.02	0.522	419	0.05	18.37	33.0	clear
NA-DP-19	18.0	14 to 18	8/26/08	3.7	7.11	0.719	128	0.03	15.38	-66.0	clear
NA-DP-20	14.0	10 to 14	8/26/08	4.6	6.46	0.161	44.1	0.04	17.01	17.5	clear
NA-DP-21	16.0	12 to 16	8/26/08	5.0	7.00	0.581	118	0.03	15.29	4.1	cloudy
NA-DP-22	14.0	10 to 14	8/26/08	4.5	6.85	0.279	36.2	0.03	18.69	-0.3	cloudy
NA-DP-23	14.0	10 to 14	8/27/08	4.0	6.68	0.653	30.4	0.06	19.16	-22.7	silty
NA-DP-24	14.0	10 to 14	9/8/08	3.5	8.85	4.235	40.9	0.08	19.68	48.5	cloudy
NA-DP-25	14.0	10 to 14	8/27/08	6.6	6.97	1.135	8.62	0.07	19.20	-48.0	clear
NA-DP-26	14.0	10 to 14	8/27/08	6.2	6.75	0.124	23.6	0.06	17.00	-2.9	cloudy
NA-DP-27	14.0	10 to 14	8/27/08	4.1	7.79	0.177	12.89	0.05	18.81	28.6	clear
NA-DP-28	14.0	10 to 14	8/27/08	5.6	6.67	0.126	23.5	0.07	18.87	4.1	clear
NA-DP-29	14.0	10 to 14	9/8/08	1.5	7.55	3.138	20.3	0.20	23.46	134.8	clear
NA-DP-30	14.0	10 to 14	8/28/08	2.5	9.38	0.642	4.86	0.08	16.96	39.7	clear
NA-DP-31	14.0	10 to 14	9/9/08	3.9	6.60	0.464	9.86	0.15	15.43	103.4	clear
NA-DP-32	14.0	10 to 14	9/9/08	4.7	7.20	0.791	13.21	0.15	16.60	81.9	cloudy
NA-DP-33	14.0	10 to 14	8/28/08	1.7	6.40	6.483	24.5	0.15	16.06	75.5	cloudy
NA-DP-34	14.0	10 to 14	8/28/08	5.0	6.38	0.560	13.76	0.13	15.34	40.2	clear
NA-DP-35	14.0	10 to 14	9/10/08	2.8	6.26	0.831	21.1	0.18	17.72	99.9	clear
NA-DP-36	18.0	14 to 18	9/5/08	4.5	6.44	0.510	52.8	0.21	13.16	123.2	cloudy
NA-DP-36	45.0	41 to 45	9/5/08	2.4	6.37	23.65	259	0.23	15.33	186.5	clearing
NA-DP-37	16.0	12 to 16	9/9/08	4.0	6.76	6.468	21.6	0.18	16.58	116.8	clear
NA-DP-37	45.0	41 to 45	9/9/08	3.5	6.72	28.70	281	0.17	15.80	173.5	clear
NA-DP-38	18.0	14 to 18	9/4/08	4.0	6.85	1.052	16.06	0.20	13.15	121.6	clear
NA-DP-38	45.0	41 to 45	9/4/08	3.2	7.61	29.85	273	0.11	15.14	10.4	cloudy
NA-DP-39	18.0	14 to 18	9/5/08	3.2	6.45	2.951	8.93	0.20	13.31	148.7	cloudy
NA-DP-39	41.0	37 to 41	9/5/08	3.2	6.86	32.30	381	0.19	16.60	159.9	clear
NA-DP-40	16.0	12 to 16	9/9/08	4.3	6.09	1.783	9.87	0.18	13.36	164.0	clear
NA-DP-40	45.0	41 to 45	9/9/08	2.8	6.65	28.85	483	0.19	14.93	185.0	clearing
NA-DP-41	14.0	10 to 14	9/3/08	2.8	7.05	5.650	3.6	0.19	14.78	62.1	clear
NA-DP-41	14.0	12 to 14	9/3/08	2.6	7.06	5.794	9.86	0.13	15.84	63.1	cloudy
NA-DP-41	45.0	41 to 45	9/3/08	3.2	7.64	33.98	329	0.15	15.88	96.1	cloudy

**Table 7: Summary of Data Gap Investigation Groundwater Sampling Field Parameter Results  
North Area, Boeing Plant 2**

Well or Probe Location	Well or Probe Depth (ft)	Screened Interval	Date	Gallons Purged	pH	Cond. (mS/cm)	Turbidity (NTU)	DO (mg/L)	Temp. (°C)	ORP (mV)	Appearance
NA-DP-42	14.0	10 to 14	9/3/08	2.5	6.43	19.42	9.46	0.18	14.38	166.5	clear
NA-DP-42	32.0	28 to 32	9/3/08	3.0	7.07	3.544	316	0.13	14.65	118.6	clear
NA-DP-42	45.0	41 to 45	9/3/08	2.7	6.97	32.16	362	0.16	14.63	97.3	cloudy
NA-DP-43	14.0	10 to 14	9/8/08	3.5	6.09	7.152	8.84	0.19	14.28	156.0	clear
NA-DP-43	45.0	41 to 45	9/8/08	2.6	6.24	24.17	396	0.15	15.72	112.9	clear
NA-DP-44	55.0	51 to 55	9/11/08	1.2	6.23	3.287	478	0.20	19.17	153.7	cloudy
NA-DP-44	65.0	61 to 65	9/11/08	1.5	6.39	4.830	468	0.19	18.47	135.0	clear
NA-DP-44	75.0	71 to 75	9/11/08	1.5	6.60	5.612	73.1	0.25	18.67	126.7	clear
NA-DP-44	85.0	81 to 85	9/11/08	3.0	7.12	11.54	415	0.14	20.45	81.6	cloudy
NA-DP-45	55.0	51 to 55	9/10/08	1.5	5.92	25.69	5.39	0.15	15.87	191.0	cloudy
NA-DP-45	65.0	61 to 65	9/10/08	1.5	6.11	30.07	267	0.13	15.88	186.3	clear
NA-DP-45	75.0	71 to 75	9/10/08	1.5	6.66	33.53	260	0.07	16.76	160.8	cloudy
NA-DP-45	85.0	81 to 85	9/10/08	1.4	6.93	36.87	284	0.19	17.58	139.5	clear
NA-DP-45	95.0	91 to 95	9/10/08	3.0	7.08	32.20	45.9	0.14	18.78	101.0	cloudy
NA-DP-46	55.0	51 to 55	8/29/08	2.5	6.50	36.72	372	0.07	17.41	-64.5	cloudy
NA-DP-46	65.0	61 to 65	8/29/08	1.9	6.72	38.14	367	0.04	17.55	-86.4	cloudy
NA-DP-46	75.0	71 to 75	8/29/08	1.5	6.99	38.95	294	0.05	19.16	-76.1	clear
NA-DP-46	85.0	81 to 85	9/2/08	1.6	6.73	34.18	217	0.12	14.54	191.6	cloudy
NA-DP-46	88.0	88 to 92	9/2/08	3.5	6.83	35.97	347	0.10	16.06	122.0	cloudy
NA-DP-46	92.0	88 to 92	9/2/08	4.0	6.85	35.12	106	0.08	15.14	-84.1	clearing
PL2-270A	17.5	12.5 to 17.5	10/27/08	3.2	4.38	0.295	2.97	0.19	18.85	24.3	clear
PL2-270B	45.0	35 to 45	10/27/08	5.5	5.83	1.043	14.2	0.28	18.28	-75.4	yellow
PL2-609A	21.0	6 to 21	10/24/08	3.5	7.20	1.620	12.4	0.20	12.66	20.9	clear
PL2-610A	21.0	6 to 21	10/22/08	2.0	7.22	0.669	13.8	0.38	14.41	34.2	clear
PL2-610B	45.0	35 to 45	10/22/08	3.0	6.51	8.644	10.94	0.22	14.90	76.3	clear
PL2-611A	21.0	6 to 21	10/22/08	4.8	6.32	1.845	8.68	0.17	13.96	143.9	clear
PL2-612A	21.0	6 to 21	10/24/08	2.2	3.04	0.506	17.6	0.13	13.71	48.8	clear
PL2-612B	45.0	35 to 45	10/24/08	2.8	3.14	11.96	9.98	0.14	13.12	24.2	clear



**Table 2: Summary of Data Gap Investigation Groundwater Sampling Field Parameter Results  
2-60s Area, Boeing Plant 2**

Well or Probe Location	Date	Gallons Purged	pH	Cond. (mS/cm)	Turbidity (NTU)	DO (mg/L)	Temp. (°C)	ORP (mV)	Appearance
2-60-DP-01-12	8/4/05	3.3	6.36	390	51.4	0.33	15.4	21	Moderately Turbid
2-60-DP-01-42	8/4/05	2.4	6.54	83	459	0.4	21.3	-133	Moderately Turbid
2-60-DP-02-12	8/4/05	2	6.16	298	10.6	1.63	20.6	15	Clear
2-60-DP-02-42	8/4/05	4	6.33	91	>1000	2.37	21.1	-123	Turbid
2-60-DP-03-12	8/5/05	1.9	6.06	251	13.6	3.2	16.9	106	Clear
2-60-DP-03-42	8/5/05	2.6	6.89	132	791	1.62	16.9	-141	Turbid
2-60-DP-04-12	8/8/05	1.5	5.61	32	5.48	4.42	20.4	51	Clear
2-60-DP-04-42	8/8/05	5.1	5.82	168	43.7	2.47	18.7	-38	Clear
2-60-DP-05-12	8/8/05	1.2	5.63	103	5.5	4.43	21.8	68	Clear
2-60-DP-05-42	8/9/05	6.7	6.27	131	35.3	1.53	16	-76	Clear
2-60-DP-06-12	8/9/05	2.5	5.64	92	4.83	2.44	17.3	55	Clear
2-60-DP-06-42	8/9/05	11.4	6.36	160	35	1.24	18.6	-104	Clear
2-60-DP-07-12	8/9/05	2.2	5.54	151	3.33	3.33	17.5	92	Clear
2-60-DP-07-42	8/10/05	8.7	6.45	171	389	1.3	16.3	-100	Turbid
2-60-DP-08-12	8/10/05	1.8	6.41	55	2.88	5.02	16.9	-82	Clear
2-60-DP-08-42	8/10/05	5.2	6.60	152	32.5	0.94	16.1	-99	Clear
2-60-DP-09-12	8/10/05	3.4	6.11	63	6.59	1.6	17.1	-42	Clear
2-60-DP-09-42	8/10/05	9.5	6.80	337	53.7	1.35	16.9	-138	Clear
2-60-DP-10-12	8/11/05	0.38	6.18	214	3.19	4.12	17.5	126	Clear
2-60-DP-10-42	8/11/05	10.5	6.64	140	305	1.48	16.9	-92	Turbid
2-60-DP-11-12	8/12/05	2.7	6.00	267	24.2	1.93	17.3	139	Clear
2-60-DP-11-42	8/12/05	5.7	6.29	84	36.8	2.39	17.2	-47	Clear
2-60-DP-12-12	8/11/05	0.8	6.15	153	6.47	4.81	18.2	59	Clear
2-60-DP-12-42	8/11/05	4.2	6.35	114	80.7	1.63	17.4	-28	Turbid
2-60-DP-13-12	8/11/05	2.9	5.98	107	2.08	2.91	17	87	Clear
2-60-DP-13-42	8/11/05	9.3	6.18	73	122	1.61	17.7	-8	Turbid
2-60-DP-14-12	8/12/05	3	6.66	107	3.2	1.08	16.8	-63	Clear
2-60-DP-14-42	8/12/05	6.2	6.37	148	36.3	4.57	17.5	-57	Clear
2-60-DP-15-12	8/12/05	2.4	6.31	67	2.55	1.34	15.5	-6	Clear
2-60-DP-15-42	8/12/05	10.2	6.47	189	86.6	2.67	16.3	-91	Turbid
2-60-DP-16-12	8/15/05	3.7	6.54	161	7.68	3.58	17.5	-85	Clear
2-60-DP-16-42	8/15/05	6.5	6.37	92	397	3.73	17.1	-72	Turbid
2-60-DP-17-12	9/2/05	3.6	5.96	100	5.38	5.74	18.3	206	Clear
2-60-DP-18-12	8/5/05	2.2	5.78	578	39.9	3.34	18.5	28	Clear
2-60-DP-19-12	8/5/05	2.8	6.06	34	>1000	1.81	18.3	56	Turbid
2-60-DP-20-12	8/8/05	2.2	5.53	35	6.17	2.51	16.4	28	Clear
2-60-DP-21-12	8/23/05	1	6.39	167	84.2	4.97	18.6	-37	Turbid
2-60-DP-22-12	8/16/05	4.3	6.37	21	5.64	0.34	16.3	-22	Clear
2-60-DP-23-12	8/16/05	2.3	5.78	23	8.05	3.25	16.9	164	Clear
2-60-DP-24-12	8/16/05	3.4	6.22	51	2.06	2.34	15.9	-5	Clear
2-60-DP-25-12	8/15/05	0.28	6.21	163	28.6	5.28	24.3	17	Clear

**Table 2: Summary of Data Gap Investigation Groundwater Sampling Field Parameter Results  
2-60s Area, Boeing Plant 2**

Well or Probe Location	Date	Gallons Purged	pH	Cond. (mS/cm)	Turbidity (NTU)	DO (mg/L)	Temp. (°C)	ORP (mV)	Appearance
2-60-DP-25-42	8/15/05	5.9	6.42	172	128	3.26	18.9	-74	Turbid
2-60-DP-26-12	8/15/05	0.31	6.75	139	6.11	4.99	19	25	Clear
2-60-DP-26-42	8/15/05	4.5	6.25	91	>1000	2.41	18.8	-46	Turbid
2-60-PL2-310A	8/16/05	2.1	6.44	384	1.05	4.17	17.7	-34	Clear
2-60-PL2-311A	8/16/05	2.9	6.45	701	6.17	4.31	18.1	-38	Clear
2-60-PL2-312A	8/17/05	2.6	6.06	91	15.4	2.55	16.2	78	Clear
2-60-PL2-314A	8/24/05	2.9	6.12	162	3.28	3.56	16.6	60	Clear
2-60-PL2-315A	8/18/05	2.7	5.97	62	2.31	3.72	17.3	119	Clear
2-60-PL2-315B4	8/25/05	2.4	6.45	128	1.95	2.24	16.8	-10	Clear
2-60-PL2-316A	8/24/05	2.5	6.13	54	9.52	3.75	17.3	22	Clear
2-60-PL2-316B	8/24/05	2.2	6.68	301	3.42	3.52	16.8	-15	Clear
2-60-PL2-316C	8/24/05	3.2	7.09	2040	0.62	6.43	15.5	-107	Clear
2-60-PL2-317AR	8/17/05	4.7	6.30	43	20.4	2.21	18.5	-8	Particles noted
2-60-PL2-319A	8/25/05	4	5.83	110	7.68	4.75	15.9	36	Clear
2-60-PL2-325A	8/17/05	2.1	6.45	86	0.26	3.13	18.4	9	Clear
2-60-PL2-325B	8/17/05	3.4	6.46	184	0.28	2.96	16.9	-51	Clear
2-60-PL2-326A	8/17/05	2	5.52	120	0.69	6.01	16.6	55	Clear
2-60-PL2-326B	8/17/05	2.7	6.65	165	0.98	2.75	15.6	-76	Clear
2-60-PL2-327A	8/18/05	4	5.89	98	17.1	5.2	17.3	52	Clear
2-60-PL2-327B	8/18/05	3.5	6.37	87	0.37	1.81	16.8	-13	Clear
2-60-PL2-328A	8/24/05	1.4	5.89	51	1.49	3.61	16.9	37	Clear
2-60-PL2-328B	8/24/05	3.4	6.50	164	3.29	2.48	16.8	-23	Clear
2-60-PL2-329A	8/25/05	2.4	5.81	53	1.56	4.12	16.8	133	Clear
2-60-PL2-329B	8/25/05	3.8	6.58	158	0.99	2.12	16.3	-2	Clear
2-60-PL2-330A	8/25/05	1.8	5.91	65	1	3.94	17.7	34	Clear
2-60-PL2-330B	8/25/05	3.4	6.52	94	2.35	1.78	17.2	-3	Clear
2-60-PL2-331A	8/25/05	3	5.86	64	8.8	5.16	18.1	45	Clear
2-60-PL2-331B	8/25/05	3.4	6.43	148	2	2.43	17.4	-17	Clear
2-60-PL2-332A	8/17/05	3	6.04	93	0.67	4.94	16.7	55	Clear
2-60-PL2-604A	8/30/05	2.7	6.69	153	2.24	1.22	16.7	-39	Clear
2-60-PL2-605A	8/30/05	5.4	6.55	386	7.31	2.35	16.6	-22	Clear
2-60-PL2-606A	8/30/05	2.7	6.38	236	4.65	5.48	17.4	-15	Clear

**Table 3: Summary of Data Gap Investigation Groundwater Sampling Field Parameter Results  
2-66 Area, Boeing Plant 2**

Well or Probe Location	Date	Gallons Purged	pH	Cond. (mS/cm)	Turbidity (NTU)	DO (% saturation)	Temp. (°C)	ORP (mV)	Appearance
PL2-002A	8/23/06	1.3	6.37	12.9	1.06	25.3	19.16	319.9	clear
PL2-002B	8/23/06	1.9	6.50	7.107	1.35	21.8	16.71	-35.7	clear
PL2-004A	8/28/06	1.5	6.34	8.838	7.2	16.9	18.82	272	clear
PL2-005A	8/25/06	1.5	6.45	0.835	3.67	19.4	18.91	387.6	clear
PL2-005B	8/25/06	2.8	6.56	5.16	1.29	10.5	17.76	1.1	clear
PL2-006AR	8/25/06	1.0	6.59	0.802	4.53	22.8	18.03	100.8	clear
PL2-007AR	8/18/06	1.1	6.36	2.138	1.63	24.1	16.27	438.1	clear
PL2-008B	8/21/06	1.6	6.76	4.99	0.67	30.0	15.26	-83.8	clear
PL2-008C	8/21/06	1.5	7.04	6.279	0.86	18.2	16.47	-137.3	slightly greenish
PL2-009A	8/22/06	1.5	6.61	0.803	2.64	22.0	16.04	-116.4	clear
PL2-009B	8/22/06	2.0	6.71	2.71	1.55	17.0	15.56	-71.5	clear
PL2-010A	8/7/06	1.4	6.34	5.579	1.51	42.5	18.11	300.2	clear
PL2-011A	8/28/06	5.5	6.73	45.47	3.7	60.7	17.88	117	clear
PL2-012A	8/28/06	5.2	6.55	45.15	5.93	58.8	18.37	204.9	clear
PL2-013A	8/22/06	1.3	7.03	21.97	1.53	41.0	18.19	473	clear
PL2-013AR	8/22/06	1.3	6.96	0.616	13.8	7.0	16.94	187.7	clear
PL2-013B	8/22/06	1.9	6.70	0.783	2.98	14.3	16.29	-106.1	clear
PL2-013C	8/22/06	2.5	7.11	20.44	4.38	14.6	16.6	-158.6	clear
PL2-014AR	8/30/06	1.6	6.45	0.852	3.16	64.9	16.61	193.3	clear
PL2-014B	8/30/06	0.9	6.41	1.114	7.13	66.5	16.2	140.1	clear
PL2-015A	8/30/06	1.7	6.78	27.51	11.4	62.4	17.32	304.6	clear
PL2-015AR	8/30/06	4.9	6.79	2.315	3.36	61.8	17.46	335.9	clear
PL2-015B	8/30/06	3.3	6.84	21.63	2.25	11.0	17.12	142.1	clear
PL2-015BR	8/30/06	1.9	6.51	10.96	2.36	60.3	17.92	195	clear
PL2-017A	8/8/06	2.2	6.65	19.18	0.8	23.7	18.72	-124.6	clear
PL2-018A	8/24/06	1.6	6.60	0.546	3.1	27.2	14.46	-28.6	clear
PL2-019A	8/28/06	2.0	6.44	3.14	1.05	4.7	17.34	72.8	clear
PL2-020A	8/24/06	2.3	6.50	0.86	22.1	20.5	16.25	200.9	clear
PL2-021A	8/8/06	1.4	6.32	4.982	0.65	22.8	18.16	352.3	clear
PL2-021B	8/8/06	1.1	7.06	4.043	3.74	26.5	15.53	-120.5	clear
PL2-021C	8/8/06	5.7	6.67	24.8	7.28	22.9	15.37	-217.5	greenish tint
PL2-022A	8/28/06	3.0	6.59	3.292	16.7	62.6	17.27	104.6	clear
PL2-023A	8/24/06	3.2	6.53	0.512	7.51	10.3	16.1	347.9	clear
PL2-024A	8/24/06	2.0	6.51	0.508	1.45	10.5	16.08	265.7	clear
PL2-025A	8/24/06	2.6	6.73	21.13	3.52	28.6	18.62	301.8	clear
PL2-026A	8/29/06	4.5	6.37	0.582	3.2	65.3	16.51	364.5	clear
PL2-026B	8/29/06	0.7	6.39	3.39	3.16	65.9	16.37	349.6	clear
PL2-026C	8/29/06	0.7	6.37	50.86	7.43	65.5	16.47	331.1	clear
PL2-027A	8/25/06	3.1	6.49	1.935	68.1	16.0	16.37	340.1	slightly turbid
PL2-028A	8/29/06	4.3	6.32	2.26	13.8	64.5	16.73	432.2	clear
PL2-028B	8/29/06	4.5	6.37	2.699	3.14	65.4	16.48	302.3	clear
PL2-029A	8/22/06	1.7	6.56	30.07	6.99	24.9	17.39	432.1	clear
PL2-030A	8/21/06	2.1	6.89	10.76	0.54	4.0	17.9	180.2	clear
PL2-030C	8/21/06	2.0	7.96	5.742	1.2	4.0	16.77	-150.9	slightly greenish

**Table 3: Summary of Data Gap Investigation Groundwater Sampling Field Parameter Results  
2-66 Area, Boeing Plant 2**

Well or Probe Location	Date	Gallons Purged	pH	Cond. (mS/cm)	Turbidity (NTU)	DO (% saturation)	Temp. (°C)	ORP (mV)	Appearance
PL2-031A	8/21/06	2.1	6.86	2.698	3.75	21.7	16.31	26.2	clear
PL2-032A	8/28/06	1.2	6.42	156.7	3.3	20.5	16.24	272.5	clear
PL2-033AR	8/24/06	2.3	6.69	1.113	5.01	19.8	17.24	-44.5	clear
PL2-034A	8/18/06	2.3	6.52	2.427	3.06	18.2	17.71	137.2	clear
PL2-035A	8/18/06	1.9	6.43	3.077	2.16	21.3	17.12	-7.2	clear
PL2-036A	8/29/06	5.0	7.54	18.837	9.94	48.0	18.54	345.5	clear
PL2-036AR	8/29/06	4.8	6.67	17.21	2.99	43.0	18.89	331.4	clear
PL2-036B	8/29/06	5.0	6.51	10.22	23.4	44.3	17.82	291.3	clear
PL2-036C	8/29/06	4.9	6.46	13.62	4.7	60.7	17.8	239.4	clear
PL2-038A	8/29/06	4.7	6.43	37.35	8.6	64.0	16.85	358.1	clear
PL2-039A	8/28/06	5.5	6.64	26.26	2.31	9.0	16.01	408.4	clear
PL2-041AA	8/21/06	1.1	6.89	2.929	1.5	13.8	18.89	-161	clear
PL2-043B	8/21/06	1.0	7.37	12	0.6	5.0	169.3	225.1	clear
PL2-044B	8/21/06	1.3	7.64	15.91	1.12	6.0	15.35	-118.6	clear
PL2-JF01AR	8/23/06	2.0	6.50	1.461	1.1	7.0	16.1	78.5	clear
PL2-JF01B	8/23/06	0.8	6.68	4.212	90.4	5.0	16.31	446.2	turbid
PL2-JF01C	8/23/06	1.2	6.98	24.17	1.76	9.0	16.22	312.4	clear
PL2-JF02A	8/23/06	1.8	6.51	0.532	9.23	10.0	15.59	104.2	clear
PL2-JF04A	8/23/06	3.6	6.40	0.522	21.4	29.5	15.45	36	clear
PL2-607A	8/22/06	1.3	6.63	0.728	1.84	14.2	16.91	47.2	clear
PP-1B-I	8/21/06	1.3	6.46	8.919	1.02	18.2	16.65	-83.5	clear
PP-1B-O	8/21/06	1.1	6.46	8.338	3.82	17.8	16.39	229.2	clear
PP-2B-I	8/18/06	2.1	6.52	6.91	2.16	21.3	18.5	115	clear
PP-2B-O	8/18/06	1.6	6.54	6.26	10.1	23.2	17.85	408.1	clear
PP-3A-I	8/17/06	2.3	6.62	5.297	2.05	14.1	16.59	11	clear
PP-3B-I	8/17/06	1.6	6.64	13.14	1.77	25.5	16.24	-54.5	clear
PP-3C-I	8/17/06	2.0	6.56	9.013	8.13	22.0	17.28	-144.2	clear
PP-4B-I	8/18/06	1.6	6.42	5.398	2.88	29.2	16.46	400.1	clear
PP-4B-O	8/18/06	3.4	6.43	6.078	430	25.5	16.21	38	clear
PP-5B-I	8/8/06	2.0	6.98	17.07	0.58	23.8	15.86	-150.8	clear
PP-5B-O	8/8/06	1.1	6.95	15.38	2.22	23.1	16.38	178.5	clear
2-66-DP-1-13	8/15/06	0.3	6.46	0.622	184	18.4	18.53	29.7	turbid
2-66-DP-2-13	8/15/06	1.6	6.41	7.766	7.87	18.6	18.25	360.9	clear
2-66-DP-3-13	8/15/06	4.0	6.51	2.03	27.6	6.3	18.15	63	clear
2-66-DP-4-13	8/15/06	3.1	6.59	NM	7.43	19.0	17.58	-68.8	clear
2-66-DP-5-13	8/14/06	3.3	6.47	1.62	6.21	17.3	18.26	-36.3	clear
2-66-DP-6-13	8/11/06	2.2	6.95	2.161	21.7	11.5	16.31	201.4	clear
2-66-DP-7-13	8/10/06	0.4	6.55	0.284	45.3	21.5	20.95	7.9	turbid
2-66-DP-8-13	8/16/06	1.9	6.73	2.818	11.4	13.7	18.58	-88.6	clear
2-66-DP-9-13	8/16/06	4.2	6.65	0.651	45.6	16.2	16.53	-90.6	clear
2-66-DP-10-13	8/10/06	2.7	6.83	0.885	3.97	16.4	18.1	170.5	clear
2-66-DP-11-13	8/10/06	3.1	6.63	0.915	36.7	16.4	17.76	45.3	turbid
2-66-DP-11-43	8/10/06	4.0	7.14	0.853	32	14.9	16.17	-140	slightly turbid
2-66-DP-12-13	8/15/06	3.6	6.72	0.489	77	27.5	15.56	81.6	clear

**Table 3: Summary of Data Gap Investigation Groundwater Sampling Field Parameter Results  
2-66 Area, Boeing Plant 2**

<b>Well or Probe Location</b>	<b>Date</b>	<b>Gallons Purged</b>	<b>pH</b>	<b>Cond. (mS/cm)</b>	<b>Turbidity (NTU)</b>	<b>DO (% saturation)</b>	<b>Temp. (°C)</b>	<b>ORP (mV)</b>	<b>Appearance</b>
2-66-DP-13-13	8/9/06	2.6	6.23	24.12	6.28	17.8	18.08	4.7	clear
2-66-DP-13-43	8/9/06	5.1	6.72	10.72	10.9	15.6	17.34	-128.5	slightly turbid
2-66-DP-14-13	8/9/06	2.0	6.58	10.39	25.8	22.0	16.95	17.1	slightly turbid
2-66-DP-14-43	8/9/06	4.7	6.63	13.56	9.83	10..76	15.8	-137.5	slightly turbid
2-66-DP-15-13	8/15/06	1.6	6.54	0.728	8.76	22.8	16.59	-3.3	clear
2-66-DP-16-13	8/10/06	0.3	6.63	3.235	10.5	21.1	19.03	3.1	turbid
2-66-DP-16-43	8/10/06	3.1	6.78	2.268	19	14.4	16.67	-127.3	clear
2-66-DP-17-13	8/11/06	4.0	6.69	2.123	12	22.6	16.26	309.3	clear
2-66-DP-17-43	8/11/06	7.7	6.78	11.35	28.8	10.4	16.23	-154.7	turbid
2-66-DP-18-13	8/16/06	3.5	7.12	0.872	30.1	14.2	18.43	-53.9	clear
2-66-DP-19-13	8/11/06	1.3	6.58	0.517	5.57	11.0	17.45	57.4	clear
2-66-DP-20-13	8/11/06	1.7	6.72	1.155	5.91	11.4	17.45	223.4	clear
2-66-DP-21-13	8/14/06	0.7	6.43	1.56	67.5	18.8	19.91	-61	clear
2-66-DP-22-13	8/14/06	4.7	6.42	2.022	11.8	13.3	16.84	308	clear
2-66-DP-23-13	8/16/06	2.8	6.57	0.806	22.4	18.2	17.07	-90.5	clear
2-66-DP-24-13	8/17/06	1.1	6.40	0.67	40.1	26.3	18.07	293.6	clear
2-66-DP-25-13	8/8/06	3.0	6.91	0.956	27.7	11.7	16.17	-92.5	slightly turbid
2-66-DP-26-13	8/15/06	1.7	6.93	5.021	5.23	18.7	18.1	-74.5	clear
2-66-DP-27-13	8/14/06	3.5	6.46	2.592	5.53	17.8	16.95	-15.9	clear
2-66-DP-28-13	8/11/06	4.9	6.81	0.333	59.4	14.8	17.86	279.6	slightly turbid
2-66-DP-29-13	8/9/06	1.1	6.69	1.101	7.3	15.0	17.25	-99.4	clear
2-66-DP-30-13	8/16/06	2.0	6.72	0.631	9.85	17.0	17.72	-118.8	clear
2-66-DP-31-13	8/16/06	2.2	6.41	0.596	9.24	15.4	16.81	-102.3	clear
2-66-DP-32-13	8/14/06	0.6	7.05	1.71	134	24.2	16.36	-83.6	turbid
2-66-DP-33-13	8/16/06	0.3	6.47	0.54	1000	20.1	20.13	21.1	turbid
2-66-DP-34-13	8/17/06	2.6	6.42	0.409	9.02	21.0	15.89	-116.5	clear
2-66-DP-35-13	8/15/06	2.7	6.73	0.915	18.4	17.4	17.79	-120.9	clear
2-66-DP-36-13	8/16/06	5.2	6.42	0.455	8.3	24.1	16.39	45.9	clear
2-66-DP-37-13	8/14/06	1.5	6.37	2.72	6.16	19.5	16.68	187.7	clear
2-66-DP-38-13	8/10/06	1.7	6.87	3.788	5.62	14.9	17.77	-114.7	clear

**Table 4: Summary of Data Gap Investigation Groundwater Sampling Field Parameter Results**  
**2-40 Area, Boeing Plant 2**

Well or Probe Location	Screened Interval (ft)	Date	Gallons Purged	pH	Cond. (mS/cm)	Turbidity (NTU)	DO (mg/L)	Temp. (°C)	ORP (mV)	Appearance
2-40-DP-01	10 to 14	6/25/08	3.5	6.76	0.503	19.47	6.09	15.27	-134.2	yellow/clear
2-40-DP-01	41 to 45	6/25/08	3.1	7.03	1.049	199	0.05	16.85	-124.7	cloudy
2-40-DP-01	61 to 65	6/26/08	2.3	7.71	9.068	59.7	0.14	14.16	-181.5	clear
2-40-DP-02	10 to 14	6/26/08	2.0	7.04	0.849	6.37	0.19	14.08	-136.5	clear
2-40-DP-02	41 to 45	6/24/08	0.9	7.23	0.979	329	0.13	15.80	-98.9	cloudy
2-40-DP-02	61 to 65	6/26/08	1.5	7.70	1.287	195	0.09	17.06	-126.4	cloudy
2-40-DP-03	10 to 14	6/25/08	2.0	6.72	0.837	11.64	0.24	15.61	-87.1	clear
2-40-DP-03	35 to 39	6/26/08	1.0	7.30	1.149	363	0.12	14.93	-119	cloudy
2-40-DP-03	41 to 45	6/25/08	3.0	7.48	0.6	307	0.05	15.39	-137.4	cloudy
2-40-DP-03	61 to 65	6/27/08	2.2	7.67	6.278	330	0.16	14.55	-159.8	cloudy
2-40-DP-04	12 to 16	6/17/08	2.2	6.70	0.809	50.4	0.44	15.94	135.8	clear
2-40-DP-04	35 to 39	6/17/08	1.7	6.95	1.091	709	0.54	15.86	131.9	cloudy
2-40-DP-04	41 to 45	6/17/08	1.7	6.63	1.353	639	0.56	15.96	119.9	cloudy
2-40-DP-04	61 to 65	6/17/08	2.1	7.04	5.734	297	0.54	15.43	161.8	cloudy
2-40-DP-05	10 to 14	6/18/08	2.8	6.73	0.539	706	0.63	16.05	109.9	cloudy/brown
2-40-DP-05	12 to 16	6/18/08	0.8	6.73	1.795	83.6	0.95	17.18	131.1	yellow/clear
2-40-DP-05	41 to 45	6/18/08	1.2	7.16	0.799	510	0.57	16.84	114.8	cloudy
2-40-DP-05	61 to 65	6/18/08	1.0	7.11	13.37	635	0.56	17.15	165.5	cloudy
2-40-DP-06	14 to 18	6/16/08	1.3	6.61	2.715	490	0.75	15.85	147.5	cloudy/yellow
2-40-DP-07	10 to 14	7/3/08	1.8	7.18	1.945	23.2	0.09	15.86	-7.8	clear
2-40-DP-08	12 to 16	7/3/08	1.8	7.28	0.578	8.34	0.16	15.31	11.4	clear
2-40-DP-09	10 to 14	7/7/08	1.7	7.31	0.61	6.1	0.41	15.08	116.7	clear
2-40-DP-10	10 to 14	6/23/08	2.7	6.59	1.05	24.7	0.74	14.31	-115.9	cloudy
2-40-DP-10	35 to 39	6/23/08	9.8	6.97	31.07	688	0.10	15.73	-151.8	cloudy
2-40-DP-10	41 to 45	6/23/08	2.0	7.00	37.43	93.7	0.21	15.12	-156.4	lt. cloudy
2-40-DP-10	61 to 65	6/24/08	2.0	7.47	561	274	0.10	15.24	-203.7	cloudy
2-40-DP-11	10 to 14	6/24/08	2.0	7.88	94.21	20.1	0.10	15.95	-93.25	cloudy
2-40-DP-11	35 to 39	6/25/08	3.5	6.89	0.515	361	0.16	14.85	-145.7	cloudy
2-40-DP-11	41 to 45	6/25/08	2.4	6.88	1.057	556	108	15.16	-133.7	cloudy
2-40-DP-11	61 to 65	6/25/08	2.2	7.47	10.71	286	0.08	17.31	-179.5	cloudy
2-40-DP-12	10 to 14	6/20/08	1.1	6.94	1.787	194	1.90	18.01	-93.2	cloudy
2-40-DP-12	35 to 39	6/20/08	2.1	6.92	0.631	626	0.30	17.33	-160.1	cloudy
2-40-DP-12	41 to 45	6/27/08	2.0	7.35	0.812	365	0.17	16.79	-120.9	cloudy
2-40-DP-12	61 to 65	6/27/08	2.6	8.01	8.581	333	0.04	17.18	-181.7	cloudy
2-40-DP-13	14 to 18	7/3/08	4.0	7.14	0.726	69.7	0.03	15.63	-64.1	clearing
2-40-DP-14	10 to 14	6/10/08	0.3	6.94	3.413	237	2.11	16.76	137.9	brown/yellow
2-40-DP-14	35 to 39	6/11/08	2.3	6.72	0.48	597	1.42	16.85	91.2	cloudy
2-40-DP-14	41 to 45	6/11/08	2.3	6.77	0.713	580	0.88	16.79	79.3	cloudy - clearing
2-40-DP-14	61 to 65	6/11/08	1.2	7.12	8.879	575	0.67	17.52	67.9	cloudy
2-40-DP-15	10 to 14	6/11/08	2.7	6.71	0.783	120	0.77	16.40	112.9	clearing
2-40-DP-15	35 to 39	6/11/08	1.5	6.97	0.65	424	0.99	16.83	11.8	cloudy/brown
2-40-DP-15	41 to 45	6/12/08	2.2	6.40	0.628	270	0.53	16.52	83.5	cloudy/brown
2-40-DP-15	61 to 65	6/12/08	2.7	6.97	8.058	781	0.46	16.31	111.6	cloudy
2-40-DP-16	10 to 14	6/13/08	1.9	6.67	1.099	43.6	0.35	16.00	95	clear
2-40-DP-17	10 to 14	6/12/08	0.9	6.85	0.955	115	1.37	16.36	81.9	clearing
2-40-DP-18	10 to 14	6/6/08	2.7	5.91	0.806	54.5	0.14	15.69	124.5	clear
2-40-DP-18	35 to 39	6/6/08	2.7	6.38	0.679	227	0.07	15.86	15.4	cloudy - clearing
2-40-DP-19	10 to 14	5/19/08	1.5	6.83	3.866	5.89	1.42	16.58	-17.5	clear
2-40-DP-19	25 to 29	5/19/08	1.3	6.64	0.576	259	0.23	17.60	-114	cloudy
2-40-DP-19	31 to 35	5/20/08	2.2	6.52	0.54	672	0.18	16.75	-99.6	cloudy/brown
2-40-DP-20	12 to 16	7/3/08	1.7	6.81	0.869	57.5	0.06	17.20	35.4	clear
2-40-DP-21	12 to 16	6/20/08	0.7	7.03	1.571	55.2	2.00	17.92	-68.9	cloudy
2-40-DP-21	41 to 45	6/27/08	2.2	7.41	0.46	410	0.10	16.34	-127.3	cloudy
2-40-DP-21	61 to 65	6/30/08	3.6	7.98	20.03	217	0.11	16.34	-166.4	cloudy
2-40-DP-22	12 to 16	6/19/08	1.4	6.15	1.27	49.9	0.03	17.33	33.3	clear
2-40-DP-22	35 to 39	6/19/08	3.0	6.33	0.509	407	0.20	17.35	29.7	cloudy

**Table 4: Summary of Data Gap Investigation Groundwater Sampling Field Parameter Results**  
**2-40 Area, Boeing Plant 2**

Well or Probe Location	Screened Interval (ft)	Date	Gallons Purged	pH	Cond. (mS/cm)	Turbidity (NTU)	DO (mg/L)	Temp. (°C)	ORP (mV)	Appearance
2-40-DP-22	41 to 45	6/19/08	1.5	6.37	0.835	478	0.20	17.35	45.5	clear
2-40-DP-22	61 to 65	6/20/08	3.6	7.39	11.25	671	0.20	16.92	-258.9	cloudy
2-40-DP-23	10 to 14	6/30/08	1.2	7.19	1.368	71.6	0.09	20.62	-68	cloudy
2-40-DP-23	41 to 45	6/30/08	2.9	7.42	2.779	398	0.06	18.39	-104.9	cloudy
2-40-DP-23	61 to 65	6/30/08	2.7	7.70	31.5	299	0.02	18.93	-147.9	cloudy
2-40-DP-24	10 to 14	6/9/08	2.5	6.29	0.632	25.5	0.43	17.93	112	clear
2-40-DP-24	35 to 39	6/9/08	2.5	6.64	0.808	524	0.64	17.62	76.7	cloudy
2-40-DP-24	41 to 45	6/9/08	1.7	6.75	4.535	599	0.67	17.68	99.1	cloudy
2-40-DP-24	61 to 65	6/10/08	2.7	7.01	11.6	159	0.49	18.01	18.2	cloudy
2-40-DP-25	10 to 14	7/3/08	3.0	7.15	0.894	24.4	0.03	15.89	-81.1	clear
2-40-DP-26	10 to 14	7/2/08	3.3	6.77	0.932	25	0.08	17.03	-43.6	clear/yellowish
2-40-DP-27	10 to 14	6/5/08	2.5	6.22	0.736	42.3	0.09	17.53	41	clear
2-40-DP-27	35 to 39	6/5/08	3.3	6.41	0.941	48.1	0.09	18.05	-89.5	cloudy
2-40-DP-27	41 to 45	6/5/08	1.5	6.37	1.782	414	0.10	17.68	-64.5	cloudy
2-40-DP-27	61 to 65	7/2/08	1.9	7.32	11.95	418	0.06	18.21	-99.2	cloudy
2-40-DP-28	10 to 14	6/6/08	2.0	6.40	0.562	19.9	0.10	15.90	18	clear
2-40-DP-29	10 to 14	6/3/08	1.7	6.49	0.723	5.1	0.44	15.72	-61.2	clear
2-40-DP-29	28 to 32	6/3/08	2.8	6.66	0.628	158	0.28	16.40	-76.1	cloudy
2-40-DP-29	35 to 39	6/3/08	2.5	6.63	0.811	152	0.17	16.33	-73.2	cloudy
2-40-DP-29	41 to 45	6/4/08	1.8	6.62	0.983	213	0.17	15.89	-33.6	cloudy
2-40-DP-29	61 to 65	6/4/08	4.0	6.82	6.02	206	0.10	16.41	-144	cloudy
2-40-DP-30	10 to 14	6/16/08	1.9	6.50	0.0641	68.2	0.60	15.66	118	clear
2-40-DP-31	10 to 14	7/8/08	2.0	7.37	0.702	74.3	0.04	16.73	-36.7	cloudy
2-40-DP-32	10 to 14	5/28/08	1.3	6.62	0.7	15	0.75	16.20	-69.6	clear
2-40-DP-32	41 to 45	5/28/08	2.0	6.41	6.493	373	0.08	17.31	-98.6	cloudy
2-40-DP-32	61 to 65	5/28/08	2.4	6.66	39.3	526	0.26	17.48	-139.6	very silty/brown
2-40-DP-33	10 to 14	6/2/08	1.1	6.68	0.86	36.7	0.40	15.24	-29.3	clear
2-40-DP-33	25 to 29	6/2/08	1.9	6.59	0.586	263	0.10	16.51	-101.3	cloudy
2-40-DP-33	31 to 35	6/2/08	1.9	6.62	0.551	250	0.10	16.71	-113.9	dark-cloudy
2-40-DP-33	41 to 45	6/2/08	2.0	6.69	2.582	173	0.08	16.60	-115	cloudy
2-40-DP-33	61 to 65	6/3/08	3.1	6.13	39.95	52.9	0.38	16.71	-71.6	cloudy
2-40-DP-34	10 to 14	7/7/08	3.8	7.54	0.324	29.9	0.02	15.47	-35.8	clear
2-40-DP-35	10 to 14	5/30/08	0.5	6.65	0.753	9.86	2.30	15.50	120.1	clear
2-40-DP-35	25 to 29	5/30/08	3.4	6.70	0.702	83	0.21	16.31	-123.2	clearing
2-40-DP-35	31 to 35	5/30/08	2.6	6.64	0.785	281	0.18	16.64	-111.5	cloudy
2-40-DP-35	41 to 45	5/30/08	2.4	6.67	5.887	112	0.63	16.53	-108.1	cloudy
2-40-DP-35	61 to 65	6/2/08	2.3	6.49	42.79	196	0.08	16.33	-107.2	cloudy
2-40-DP-36	10 to 14	7/1/08	1.2	6.78	0.859	64.1	0.11	17.52	-40.5	clear
2-40-DP-37	10 to 14	5/22/08	2.6	6.68	1.013	8.81	9.05	13.81	180.9	clear
2-40-DP-37	19 to 23	5/23/08	2.6	6.60	1.16	16.63	2.12	14.52	15.6	clear
2-40-DP-37	25 to 29	5/23/08	2.0	6.39	0.638	8.2	0.37	15.70	-82.1	clear
2-40-DP-37	31 to 35	5/23/08	2.9	6.39	0.613	468	0.31	16.51	-108.8	brown/cloudy
2-40-DP-37	41 to 45	5/23/08	1.7	6.37	41.92	468	0.23	16.25	-113	cloudy
2-40-DP-37	61 to 65	5/23/08	2.1	6.51	39.59	293	0.33	16.40	-139.7	cloudy
2-40-DP-38	10 to 14	5/22/08	1.3	6.73	0.942	7.13	8.22	12.54	213.3	clear
2-40-DP-38	19 to 23	5/22/08	3.2	6.65	1.828	59.7	0.22	14.20	-46.9	clear
2-40-DP-38	25 to 29	5/22/08	1.8	6.53	0.909	467	0.16	14.95	-94.4	brown/cloudy
2-40-DP-38	31 to 35	5/22/08	3.0	6.41	0.868	65.9	0.23	16.16	-109.8	clear
2-40-DP-38	41 to 45	5/22/08	2.8	6.37	35.12	453	0.45	16.16	-116	cloudy
2-40-DP-38	61 to 65	5/22/08	6.8	6.46	43.67	336	0.18	15.92	-116.1	brown/cloudy
2-40-DP-39	10 to 14	5/20/08	1.8	6.52	2.474	9.6	9.02	13.48	73.7	clear
2-40-DP-39	19 to 23	5/20/08	3.4	6.48	0.535	55.1	0.18	16.18	-77.5	clear
2-40-DP-39	25 to 29	5/20/08	2.4	6.47	0.632	346	0.22	17.13	-93.5	brown/cloudy
2-40-DP-39	31 to 35	5/21/08	2.8	6.44	2.392	386	0.19	16.74	-113	cloudy
2-40-DP-39	41 to 45	5/21/08	2.4	6.38	38.39	540	0.15	16.58	-188.7	cloudy
2-40-DP-39	61 to 65	5/21/08	2.6	6.56	43.77	434	0.13	16.52	-128.6	cloudy/brown

**Table 4: Summary of Data Gap Investigation Groundwater Sampling Field Parameter Results**  
**2-40 Area, Boeing Plant 2**

Well or Probe Location	Screened Interval (ft)	Date	Gallons Purged	pH	Cond. (mS/cm)	Turbidity (NTU)	DO (mg/L)	Temp. (°C)	ORP (mV)	Appearance
2-40-DP-40	10 to 14	5/15/08	1.1	6.56	4.08	8.9	9.11	12.43	96.9	clear
2-40-DP-40	19 to 23	5/19/08	3.7	6.42	1.825	457	0.16	15.07	-88.3	cloudy
2-40-DP-40	25 to 29	5/19/08	2.6	6.46	0.541	83.1	3.20	16.50	-82.7	clearing
2-40-DP-40	31 to 35	5/19/08	2.5	6.45	0.549	562	0.13	16.51	-98.9	cloudy
2-40-DP-40	41 to 45	5/20/08	1.6	6.33	38.72	626	0.17	15.81	-90.1	cloudy/brown
2-40-DP-40	61 to 65	5/20/08	2.0	6.53	43.88	271	0.24	15.82	-96	cloudy
2-40-DP-41	10 to 14	5/14/08	1.9	7.36	2.957	22.1	10.20	12.74	72.4	clear
2-40-DP-41	19 to 23	5/15/08	1.5	6.77	3.047	59.9	2.06	14.98	-41	clear
2-40-DP-41	25 to 29	5/15/08	2.0	6.53	0.65	67.2	0.36	15.27	-83.8	clear
2-40-DP-41	31 to 35	5/15/08	1.3	6.56	0.572	351	0.20	15.75	-107	cloudy
2-40-DP-41	41 to 45	5/15/08	2.4	6.49	36.01	283	0.12	15.94	-130.7	silty/cloudy
2-40-DP-41	61 to 65	5/15/08	3.8	6.59	42.82	183	0.22	15.81	-148.2	cloudy/silty
2-40-DP-42	10 to 14	5/13/08	0.9	6.83	3.303	5.35	6.99	12.01	54.4	clear
2-40-DP-42	19 to 23	5/14/08	2.0	6.84	3.815	5.19	1.19	14.71	-53.8	clear
2-40-DP-42	25 to 29	5/14/08	1.5	6.67	0.733	92.9	0.23	14.86	-227.6	clear
2-40-DP-42	31 to 35	5/14/08	3.8	6.54	0.762	90.1	0.18	15.15	-133.6	clear
2-40-DP-42	41 to 45	5/13/08	1.5	6.62	34.55	533	0.15	14.53	-252.4	cloudy
2-40-DP-42	61 to 65	5/13/08	1.9	7.01	43.51	665	0.09	14.84	-486	cloudy
2-40-DP-43	10 to 14	5/12/08	1.3	7.50	4.526	8.72	9.66	12.14	53.3	clear
2-40-DP-43	19 to 23	5/12/08	0.6	7.02	0.562	10.01	0.37	14.04	-164.6	clear
2-40-DP-43	25 to 29	5/12/08	2.1	6.89	0.499	487	0.19	14.53	-251.6	cloudy
2-40-DP-43	31 to 35	5/13/08	3.0	6.75	0.588	606	0.22	14.93	-443.6	cloudy
2-40-DP-43	41 to 45	5/12/08	3.7	6.95	19.78	40	0.29	14.63	-246.6	clear
2-40-DP-43	61 to 65	5/12/08	2.2	7.19	43.15	126	0.24	14.26	-517.3	clear
2-40-DP-44	10 to 14	12/16/08	3.0	6.57	4.579	9.86	0.19	10.80	-68.9	clear
2-40-DP-44	19 to 23	12/16/08	0.8	6.76	2.056	88.5	0.31	10.00	-53.7	cloudy
2-40-DP-44	25 to 29	12/16/08	1.9	6.93	36.21	413	0.17	12.03	-15.6	cloudy
2-40-DP-44	31 to 35	12/17/08	2.5	6.76	43.5	101	0.29	11.81	-15.9	dark, cloudy
2-40-DP-44	41 to 45	12/17/08	3.4	6.59	43.65	9.69	0.30	10.89	-50.5	clear
2-40-DP-44	61 to 65	12/17/08	4.0	6.82	33.41	4.93	0.40	10.48	-56.6	clear
2-40-DP-45	10 to 14	5/27/08	1.4	6.69	0.971	65.9	8.22	15.10	158.4	clearing
2-40-DP-45	19 to 23	5/27/08	3.0	6.52	0.582	151	0.24	16.41	-101.6	clearing
2-40-DP-45	25 to 29	5/27/08	3.2	6.50	0.597	679	0.64	16.87	-104.1	cloudy
2-40-DP-45	31 to 35	5/27/08	1.5	6.44	0.567	84.4	0.51	17.10	-99.3	clearing
2-40-DP-45	41 to 45	5/27/08	2.2	6.40	39.07	294	1.21	16.81	-76.9	cloudy
2-40-DP-45	61 to 65	5/27/08	2.6	6.51	37.95	435	0.59	16.79	-131.6	cloudy
2-40-DP-46	10 to 14	6/9/08	0.4	6.6	1.646	370	1.53	19.11	102.2	cloudy/brown
2-40-DP-47	10 to 14	6/25/08	2.8	6.39	1.309	17.99	0.17	13.42	-87	clear
2-40-DP-48	10 to 14	7/1/08	2.6	6.73	0.608	55.4	6.05	17.27	-65.6	clear
2-40-DP-49	10 to 14	6/27/08	1.7	7.32	1.342	13.93	0.11	16.22	-110.4	clear/yellow
2-40-DP-50	10 to 14	6/18/08	2.2	6.59	0.792	36.6	0.64	15.93	121.1	clear
2-40-DP-51	10 to 14	6/3/08	2.0	6.61	0.999	11.33	0.51	16.87	-113.6	clear
2-40-DP-52	10 to 14	7/2/08	2.6	6.94	0.716	35.7	0.08	16.79	-65	clear
2-40-DP-53	10 to 14	6/9/08	2.1	6.34	0.736	125	0.48	17.76	78.4	clearing
2-40-DP-54	10 to 14	6/6/08	2.5	6.31	0.582	92.9	0.09	16.83	31.2	clear
2-40-DP-55	12 to 16	7/7/08	3.4	7.23	0.719	27.1	0.03	18.21	-37.6	clearing
2-40-DP-56	10 to 14	6/4/08	1.0	6.78	0.861	6.1	0.35	15.61	-23.6	clear
2-40-DP-57	10 to 14	6/5/08	1.5	6.14	0.669	64.9	0.11	16.43	-1.4	clear
2-40-DP-58	10 to 14	6/10/08	1.6	6.80	1.339	83.8	0.49	17.16	-9.6	brown/yellow
2-40-DP-59	10 to 14	6/18/08	3.1	6.77	0.589	47.3	0.49	15.91	124.5	clear
2-40-DP-60	10 to 14	6/17/08	0.3	7.22	1.586	227	2.4	17.34	142.9	cloudy
2-40-DP-61	10 to 14	6/11/08	2.7	6.54	2.19	67.4	0.45	19.16	150.1	brown/yellow
2-40-DP-62	12 to 16	6/17/08	2.9	6.83	1.56	28.5	0.50	16.41	133.6	yellow/clear
2-40-DP-63	11 to 15	6/17/08	2.2	6.62	0.821	36	0.43	16.18	136.4	clear
2-40-DP-64	10 to 14	6/5/08	2.7	6.33	0.75	140	0.10	16.35	22.4	clear
2-40-DP-65	10 to 14	6/9/08	0.1	6.75	1.584	N/A	3.4	16.66	107.4	N/A
2-40-DP-66	10 to 14	6/16/08	0.1	6.99	2.146	139	0.6	14.72	158.9	cloudy/yellow



**Table 4: Summary of Data Gap Investigation Groundwater Sampling Field Parameter Results**  
**2-40 Area, Boeing Plant 2**

Well or Probe Location	Screened Interval (ft)	Date	Gallons Purged	pH	Cond. (mS/cm)	Turbidity (NTU)	DO (mg/L)	Temp. (°C)	ORP (mV)	Appearance
2-40-DP-67	10 to 14	6/19/08	0.6	6.91	3.163	278	1.00	17.29	-177.6	cloudy
2-40-DP-68	10 to 14	6/19/08	4.1	6.82	0.435	27.8	0.49	15.90	109.9	clear
2-40-DP-69	10 to 14	5/28/08	1.2	6.72	7.323	10.44	4.57	14.04	82.3	clear
2-40-DP-70	10 to 14	5/28/08	0.8	6.37	6.819	40	2.66	14.94	81.6	clear
2-40-DP-71	10 to 14	6/23/08	1.4	6.60	89.42	34.7	0.21	15.36	-90.4	cloudy
2-40-DP-72	10 to 14	6/24/08	2.3	7.81	12.92	51.2	0.20	14.61	19.8	cloudy
2-40-DP-73	10 to 14	6/25/08	3.3	6.67	0.359	10	0.04	15.57	-49.2	clear
2-40-DP-74	10 to 14	7/2/08	1.7	6.58	0.202	28.1	0.05	16.19	33.2	clear
2-40-DP-75	10 to 14	7/1/08	3.2	6.88	0.779	57.9	0.08	16.87	-78.7	cloudy
2-40-DP-76	10 to 14	6/5/08	1.9	6.57	0.763	75.9	0.15	15.89	-38.3	clear
2-40-DP-77	10 to 14	6/2/08	1.8	6.66	0.655	8.76	0.51	15.56	-24.7	clear
2-40-DP-78	10 to 14	5/28/08	2.0	6.52	0.779	44.1	0.12	16.41	-65.6	clear
2-40-DP-79	10 to 14	6/24/08	2.1	7.46	12.18	43	0.10	14.67	-92.6	cloudy
2-40-DP-80	10 to 14	6/9/08	1.9	6.32	2.274	9.95	0.50	20.39	104.1	clear
2-40-DP-81	10 to 14	6/6/08	3.0	6.35	0.637	13.7	0.11	15.40	37.6	clear
2-40-DP-82	10 to 14	6/13/08	2.0	6.72	0.67	93.2	1.09	15.93	83.6	cloudy
2-40-DP-83	10 to 14	6/3/08	0.4	6.75	2.336	90	1.76	16.66	-59.8	yellowish-cloudy
2-40-DP-84	10 to 14	5/30/08	1.4	6.59	0.659	9.16	3.12	16.62	135.3	clear
2-40-DP-85	10 to 14	7/2/08	2.0	7.04	0.687	16.96	0.05	15.99	-58.4	clear
2-40-DP-86	10 to 14	6/13/08	2.6	6.61	0.57	13.79	0.59	15.85	85	clear
2-40-DP-87	10 to 14	6/13/08	2.0	6.52	0.796	56.7	0.77	16.34	124.4	tan/clear
2-40-DP-88	10 to 14	6/13/08	3.1	6.42	0.76	48.60	0.40	15.96	109.6	clear
2-40-DP-89	10 to 14	6/13/08	2.3	6.71	0.753	63.8	0.38	15.16	101.6	clear
2-40-DP-90	10 to 14	6/6/08	3.2	6.33	0.704	25.1	0.09	15.04	41.4	clear
2-40-DP-91	10 to 14	6/4/08	1.4	6.53	0.999	33.9	0.21	15.48	-56.1	yellow/clear
2-40-DP-91	28 to 32	6/4/08	4.4	6.51	6.854	217	0.06	16.00	-116.2	cloudy
2-40-DP-91	35 to 39	6/4/08	2.1	6.74	0.943	279	0.12	16.01	-59.4	brown/cloudy
2-40-DP-92	10 to 14	6/3/08	2.5	6.56	1.174	47.2	0.54	15.69	-84.6	cloudy
2-40-DP-93	10 to 14	7/8/08	3.7	7.35	0.98	23	0.07	16.39	-66.7	clear
2-40-DP-94	10 to 14	6/30/08	1.3	6.96	0.815	23.7	0.31	16.96	-22.1	clear/yellowish
2-40-DP-95	10 to 14	6/9/08	2.1	6.51	1.09	174	0.48	17.5	77.4	clearing
2-40-DP-96	10 to 14	6/23/08	2.7	6.53	1.01	13.9	0.66	14.90	-115.7	cloudy
2-40-DP-97	10 to 14	7/7/08	3.1	7.08	0.187	19	0.03	14.45	22.2	clear
2-40-DP-98	10 to 14	6/12/08	3.0	6.64	0.574	83.5	0.41	17.10	80.4	clear
2-40-DP-99	10 to 14	6/12/08	3.0	6.96	0.59	45.5	0.38	15.83	65.1	clear
2-40-DP-100	10 to 14	6/6/08	1.4	6.40	1.189	113	0.13	15.74	108.9	clear
2-40-DP-101	10 to 14	6/4/08	0.3	6.82	0.734	187	1.76	15.89	11.9	clearing
2-40-DP-102	10 to 14	5/30/08	0.7	6.47	0.566	8.36	2.26	16.04	-46.4	clear
2-40-DP-103	10 to 14	7/3/08	1.7	7.02	0.726	9.84	0.03	16.06	-20.4	clear
2-40-DP-104	10 to 14	7/7/08	5.6	7.28	0.255	17.01	0.04	15.46	12.9	clear
2-40-DP-105	10 to 14	6/11/08	1.5	6.96	1.442	44.8	0.73	16.52	126.8	brown/yellow
PL2-BF03A	8 to 18	7/24/08	4.0	7.47	0.263	6.63	0.03	18.42	54.4	clear
PL2-321A	8 to 18	7/21/08	1.2	7.25	0.597	17.0	0.26	15.26	106.7	clear
PL2-401A	8 to 18	7/24/08	1.5	7.32	0.461	7.18	0.04	17.29	-14.3	clear
PL2-410A	8 to 18	7/21/08	2.0	7.74	0.395	6.56	0.05	16.08	2.7	clear
PL2-420A	8 to 18	7/23/08	1.2	7.79	1.124	2.29	0.05	15.30	-21.7	clear
PL2-420B	35 to 45	10/23/08	3.0	5.25	6.088	10.85	0.11	16.23	-11.5	clear
PL2-420C	75.5 to 80.5	8/7/08	2.2	7.82	42.88	9.93	0.09	15.93	78.3	clear
PL2-425A	8 to 18	7/23/08	2.5	7.80	0.618	9.52	0.03	15.46	-64.4	clear
PL2-425B	40 to 45	8/6/08	2.7	7.38	7.123	6.49	0.05	16.32	90.2	clear
PL2-425C	77 to 82	8/6/08	4.0	6.92	32.08	6.43	0.08	16.33	119.2	clear
PL2-430A	8 to 18	7/22/08	2.5	7.40	0.562	3.69	0.04	16.01	-43.0	clear
PL2-435A	8 to 18	7/21/08	1.7	8.25	1.207	16.3	0.04	16.68	-72.0	clear
PL2-435B	40 to 45	8/7/08	3.0	8.60	0.800	18.6	0.08	15.87	33.5	clear
PL2-435C	79 to 84	8/11/08	2.5	6.89	15.13	1.29	0.01	16.11	75.5	clear
PL2-440A	8 to 18	7/24/08	2.5	5.05	3.182	8.40	0.04	15.14	177.1	clear

**Table 4: Summary of Data Gap Investigation Groundwater Sampling Field Parameter Results  
2-40 Area, Boeing Plant 2**

<b>Well or Probe Location</b>	<b>Screened Interval (ft)</b>	<b>Date</b>	<b>Gallons Purged</b>	<b>pH</b>	<b>Cond. (mS/cm)</b>	<b>Turbidity (NTU)</b>	<b>DO (mg/L)</b>	<b>Temp. (°C)</b>	<b>ORP (mV)</b>	<b>Appearance</b>
PL2-440B	40.5 to 45.5	8/11/08	3.1	6.39	0.833	2.65	0.01	16.33	-2.2	clear
PL2-440C	80 to 85	8/11/08	2.0	6.93	21.92	16.26	0.01	16.93	-25.6	clear
PL2-441A	8 to 18	7/21/08	2.0	7.66	0.292	8.86	0.06	15.45	21.4	clear
PL2-441BR	35 to 45	10/23/08	2.5	5.37	0.809	9.08	0.11	14.80	0.7	clear
PL2-441C	77 to 82	8/11/08	6.2	8.22	30.90	5.00	0.05	15.57	58.0	clear
PL2-442A	8 to 18	7/23/08	1.8	7.47	0.773	7.57	0.04	17.14	-73.7	clear
PL2-442B	35 to 45	10/23/08	2.7	5.73	3.413	8.05	0.16	17.03	-15.9	clear
PL2-442C	70.5 to 80.5	8/6/08	5.0	6.94	36.53	4.56	0.04	16.95	95.1	clear
PL2-443A	8 to 23	7/22/08	1.5	7.50	2.615	15.64	0.04	15.05	-7.3	clear
PL2-443B	35 to 45	10/23/08	2.5	6.86	8.562	7.98	0.13	16.12	45.9	clear
PL2-443C	70 to 75	8/7/08	2.1	7.79	41.35	10.40	0.10	15.96	90.0	clear
PL2-444A	10 to 25	7/23/08	2.0	7.17	0.560	5.57	0.04	16.37	-19.1	clear
PL2-445A	10 to 25	7/24/08	1.2	8.12	0.872	6.83	0.07	14.76	-15.7	clear
PL2-446A	8 to 18	7/22/08	1.0	7.50	0.709	5.95	0.04	16.00	-1.3	clear
PL2-447A	8 to 18	7/22/08	1.5	7.32	0.638	3.98	0.05	16.57	-63.8	clear
PL2-608A	6 to 21	8/11/08	2.5	7.73	0.710	2.85	0.16	14.92	42.0	clear
PL2-608B	40.5 to 45.5	8/11/08	3.3	8.09	0.463	13.56	0.06	14.93	2.8	clear
PL2-608C	79 to 84	8/11/08	1.9	8.20	28.61	5.50	0.06	14.73	65.3	clear

**Table 5: Summary of Data Gap Investigation Groundwater Sampling Field Parameter Results**  
**2-31 Area, Boeing Plant 2**

Well or Probe Location	Screened Interval (ft)	Date	Gallons Purged	pH	Cond. (mS/cm)	Turbidity (NTU)	DO (mg/L)	Temp. (°C)	ORP (mV)	Appearance
2-31-DP-01	10 - 14	9/16/09	3.6	7.06	0.239	45.9	0.18	17.63	58.0	Clearing
2-31-DP-02	10 - 14	9/24/09	1.8	7.91	0.537	8.16	0.23	20.54	42.1	Clear
2-31-DP-02	40 - 44	9/24/09	5.8	7.75	1.188	164	0.23	17.94	-99.9	Cloudy
2-31-DP-03	10 - 14	9/1/09	1.8	5.71	0.633	27.0	0.65	19.68	-6.5	Clear
2-31-DP-03	40 - 44	9/1/09	2.8	7.15	0.477	218	0.13	19.23	-58	Cloudy
2-31-DP-04	10 - 14	8/31/09	4.8	7.86	1.149	27.9	0.23	19.51	-31.9	Clearing
2-31-DP-04	40 - 44	8/31/09	5.3	8.21	0.698	188	0.08	18.82	-77.2	Cloudy
2-31-DP-05	10 - 14	9/2/09	3.2	8.92	0.483	32.3	0.14	20.63	-54.7	Cloudy
2-31-DP-05	40 - 44	9/2/09	1.8	7.54	0.587	172	0.14	22.40	-92.1	Cloudy
2-31-DP-06	10 - 14	9/1/09	1.2	7.06	0.454	8.86	0.58	20.86	13.6	Clear
2-31-DP-06	40 - 44	9/1/09	3.3	7.35	0.680	642	0.14	18.80	-63.4	Cloudy
2-31-DP-07	10 - 14	9/3/09	2.4	7.68	1.109	23.7	0.47	21.01	-44.1	Clear
2-31-DP-07	40 - 44	9/3/09	2.2	7.96	0.631	187	0.17	20.58	-85.8	Cloudy
2-31-DP-08	10 - 14	9/14/09	2.8	8.91	0.493	16.3	0.12	17.39	-62.9	Clear
2-31-DP-08	40 - 44	9/14/09	4.6	10.17	4.589	44.1	0.08	17.23	-89.9	Clearing
2-31-DP-09	12 - 16	9/14/09	1.8	10.18	0.533	27.1	0.15	17.00	-66.2	Clear
2-31-DP-09	40 - 44	9/14/09	4.0	10.13	1.835	715	0.15	17.59	-52.7	Clearing
2-31-DP-10	10 - 14	9/11/09	1.2	7.76	0.685	31.0	0.22	17.78	-19.4	Clear
2-31-DP-10	40 - 44	9/11/09	3.0	6.30	0.685	680	0.19	20.47	-13.7	Cloudy, Yellow
2-31-DP-11	10 - 14	9/2/09	3.2	7.72	0.766	24.1	0.10	18.87	-61.8	Clear
2-31-DP-11	40 - 44	9/2/09	4.1	7.92	0.833	1206	0.11	18.52	-76.3	Cloudy
2-31-DP-12	10 - 14	9/11/09	1.8	7.24	8.409	6.97	0.48	15.20	108.7	Clear
2-31-DP-12	40 - 44	9/11/09	2.6	8.58	22.31	91.7	0.14	16.20	-70.9	Clearing
2-31-DP-13	10 - 14	9/21/09	2.4	7.00	0.514	9.62	0.02	19.80	37.9	Clear, Pale Yellow
2-31-DP-14	12 - 16	9/21/09	1.0	7.04	0.323	16.7	0.02	18.79	45.3	Clear
2-31-DP-15	10 - 14	9/15/09	1.8	9.14	0.796	8.68	0.20	24.08	-54.4	Clear
2-31-DP-16	10 - 14	9/10/09	2.8	9.22	0.277	18.9	0.10	17.68	0.4	Clear
2-31-DP-17	10 - 14	9/10/09	1.6	9.31	0.546	17.4	0.21	17.15	-55.0	Clear
2-31-DP-18	10 - 14	9/10/09	3.2	8.56	0.258	25.4	0.09	16.18	-4.3	Clear
2-31-DP-19	10 - 14	9/24/09	2.8	7.73	0.191	16.8	0.21	16.13	-71.1	Clear
2-31-DP-20	10 - 14	9/21/09	2.9	6.96	0.605	10.61	0.18	14.40	-36.0	Clear
2-31-DP-21	10 - 14	9/15/09	1.4	10.19	0.560	14.2	0.11	18.41	46.8	Clear
2-31-DP-22	10 - 14	9/10/09	1.8	7.89	0.349	16.0	0.28	17.46	81.2	Clear
2-31-DP-23	10 - 14	9/15/09	2.7	10.18	0.520	15.8	0.15	18.03	2.2	Clear
2-31-DP-24	12 - 16	9/3/09	3.0	9.39	0.812	59.4	0.21	21.95	-46.5	Clearing
2-31-DP-25	10 - 14	9/9/09	3.1	9.28	0.508	39.9	0.13	20.33	-7.6	Clear
2-31-DP-26	10 - 14	9/9/09	3.3	9.01	1.620	17.1	0.24	20.36	-19.0	Yellow
2-31-DP-27	10 - 14	9/15/09	1.6	9.49	0.748	8.42	0.21	20.23	-0.2	Clear
2-31-DP-28	10 - 14	9/1/09	4.8	6.48	0.695	25.1	0.33	21.21	14	Clear
2-31-DP-29	10 - 14	9/8/09	3.4	7.97	0.659	26.8	0.26	19.56	-34.1	Clear
2-31-DP-30	10 - 14	9/15/09	3.2	8.37	0.536	27.9	0.16	22.76	-46.9	Clear
2-31-DP-31	10 - 14	8/31/09	3.7	7.68	0.847	9.96	0.15	19.28	-14.5	Clear

**Table 5: Summary of Data Gap Investigation Groundwater Sampling Field Parameter Results  
2-31 Area, Boeing Plant 2**

<b>Well or Probe Location</b>	<b>Screened Interval (ft)</b>	<b>Date</b>	<b>Gallons Purged</b>	<b>pH</b>	<b>Cond. (mS/cm)</b>	<b>Turbidity (NTU)</b>	<b>DO (mg/L)</b>	<b>Temp. (°C)</b>	<b>ORP (mV)</b>	<b>Appearance</b>
2-31-DP-32	10 - 14	8/31/09	4.6	7.59	0.934	24.9	0.19	20.07	-4.7	Clear
2-31-DP-33	10 - 14	8/31/09	3.9	7.81	0.981	28.3	0.45	19.51	-24.3	Clear
2-31-DP-34	10 - 14	9/2/09	3.7	7.12	0.536	11.6	0.16	19.91	-59.6	Clear
2-31-DP-35	12 - 16	9/8/09	2.4	8.48	0.517	8.64	0.31	17.71	-28.9	Clear
2-31-DP-36	10 - 14	9/1/09	5.3	7.24	0.788	20.5	0.13	19.56	-44.5	Clear
2-31-DP-37	10 - 14	9/8/09	4.2	8.47	0.652	47.8	0.13	17.31	-83.8	Cloudy
2-31-DP-38	12 - 16	9/3/09	3.4	8.13	0.825	90.0	0.22	20.59	-39.3	Cloudy
2-31-DP-39	10 - 14	9/16/09	2.0	8.92	0.491	9.67	0.25	17.83	-20.5	Clear
2-31-DP-39	40 - 44	9/16/09	2.2	10.00	0.656	67.0	0.20	18.28	-50.4	Cloudy
2-31-DP-39	68 - 72	9/16/09	1.2	8.44	15.90	27.4	0.29	17.86	-92.7	Clear
2-31-DP-40	10 - 14	9/2/09	2.5	7.67	1.125	20.1	0.17	19.64	-51.2	Clear
2-31-DP-41	10 - 14	9/8/09	3.6	8.61	0.454	20.4	0.10	17.81	-60.9	Clear
2-31-DP-42	10 - 14	9/14/09	2.6	9.00	0.448	9.37	0.12	17.76	31.7	Clear
2-31-DP-43	10 - 14	9/8/09	4.0	8.46	0.675	38.7	0.11	16.57	15.3	Clear
2-31-DP-44	10 - 14	9/21/09	1.7	7.03	1.338	0.27	0.08	15.64	128.8	Clear
2-31-DP-45	10 - 14	9/9/09	1.8	8.84	0.553	2.92	0.08	21.05	-52.5	Clear
2-31-DP-46	10 - 14	9/9/09	2.3	9.23	0.760	9.18	0.07	15.61	-38.0	Clear
2-31-DP-47	10 - 14	9/8/09	3.8	8.57	0.523	84.3	0.23	18.66	-33.7	Clearing
2-31-DP-48	10 - 14	9/3/09	2.1	8.18	0.675	40.5	0.23	19.06	-20.0	Clear
2-31-DP-49	10 - 14	9/8/09	3.6	8.68	0.512	9.84	0.38	19.41	-31.0	Clearing
2-31-DP-50	10 - 14	9/9/09	3.5	7.21	4.488	9.76	0.43	16.08	156.0	Clear
PL2-233A	10 - 25	10/6/09	4.2	6.68	0.862	6.1	0.78	17.30	-130.0	Clear
PL2-501A	10 - 20	10/2/09	3.5	6.83	0.392	1.73	0.19	18.85	-11.5	Clear, Yellow
PL2-501B	40 - 50	10/2/09	2.5	7.18	0.730	2.44	0.15	17.84	-28.6	Clear
PL2-501C	68 - 78	10/2/09	2.6	7.38	33.37	6.96	0.13	17.52	-40.1	Clear
PL2-502A	8 - 18	10/1/09	1.7	6.31	59.0	4.35	0.26	17.10	-87	Clear
PL2-503A	7 - 17.5	10/1/09	2.0	6.63	51.3	2.19	0.18	24.50	-99	Clear
PL2-504A	4.2 - 14.7	10/5/09	0.8	9.90	0.262	5.98	0.34	19.10	91.5	Clear
PL2-505A	9 - 24.5	10/5/09	1.3	10.38	0.655	7.91	0.32	22.59	-34.7	Clear
PL2-507A	8 - 18	10/6/09	1.8	5.85	20.9	9.1	5.88	19.3	58.0	Clear
PL2-507B	35 - 45	10/6/09	3.6	6.77	57.9	49.3	0.74	15.2	-128	Clearing
PL2-507C	64 - 74	10/7/09	1.8	7.15	1,510	5.74	0.92	15.1	-174	Clear
PL2-509A	8 - 18	10/5/09	2.5	9.28	0.884	9.85	0.27	19.66	-11.4	Clear, Slightly Yellow
PL2-509B	40 - 50	10/5/09	3.7	10.13	0.763	9.16	0.18	18.25	-28.0	Clear, Colorless

**Table 6: Summary of Data Gap Investigation Groundwater Sampling Field Parameter Results  
2-10 Area, Boeing Plant 2**

Well or Probe Location	Screened Interval (ft)	Date	Gallons Purged	pH	Cond. (mS/cm)	Turbidity (NTU)	DO (mg/L)	Temp. (°C)	ORP (mV)	Appearance
2-10-DP-01	10 - 14	1/27/10	2.6	6.43	0.427	23.2	0.36	13.73	22.5	Clear
2-10-DP-02	10 - 14	2/1/10	5.0	6.52	0.922	9.63	0.11	15.07	-97.9	Clear
2-10-DP-03	10 - 14	1/29/10	1.6	6.37	12.05	8.19	0.48	13.57	-11.6	Clear
2-10-DP-04	10 - 14	2/4/10	4.5	6.75	0.228	8.62	0.36	23.26	-81.9	Clear
2-10-DP-05	10 - 14	2/3/10	2.5	6.50	0.324	9.64	0.14	12.96	-30.1	Clear
2-10-DP-06	10 - 14	2/3/10	4.5	6.57	0.794	15.1	0.16	14.48	-43.8	Clear, yellow
2-10-DP-07	10 - 14	2/2/10	2.7	7.47	0.605	4.74	0.13	15.40	-88.0	Clear
2-10-DP-08	10 - 14	2/2/10	2.2	6.43	0.642	7.80	0.31	14.59	67.6	Clear
2-10-DP-09	10 - 14	2/3/10	2.7	6.83	0.298	9.31	0.14	14.32	-27.0	Clear
2-10-DP-10	10 - 14	2/2/10	2.6	6.41	1.227	8.08	0.19	14.26	-11.3	Clear
2-10-DP-11	10 - 14	2/3/10	4.0	6.71	0.216	13.6	0.20	13.80	-31.9	Clear
2-10-DP-12	10 - 14	1/26/10	3.6	6.66	0.704	9.96	0.33	14.34	-130.9	Clear
2-10-DP-13	10 - 14	1/26/10	1.0	6.61	0.790	10.26	2.58	10.85	-73.7	Clear
2-10-DP-14	10 - 14	1/27/10	3.7	6.23	0.125	21.8	0.29	10.67	3.1	Clear
2-10-DP-15	10 - 14	2/2/10	2.6	6.21	0.211	14.9	0.15	13.35	18.1	Clear
2-10-DP-16	10 - 14	2/2/10	4.5	7.11	0.952	24.5	0.10	14.15	-93.2	Clear, yellowish
2-10-DP-17	10 - 14	1/27/10	3.0	6.74	0.573	31.9	0.33	15.07	-68.6	Clear, yellow
2-10-DP-18	10 - 14	1/27/10	3.5	6.85	0.394	17.2	0.32	14.78	-87.7	Clear
2-10-DP-19	10 - 14	1/27/10	5.0	7.58	0.354	38.8	0.22	12.90	-175.3	Clear, yellow
2-10-DP-20	10 - 14	1/27/10	4.0	7.45	0.096	17.0	0.28	10.92	-96.8	Clear
2-10-DP-21	10 - 14	2/2/10	4.5	6.56	0.864	11.6	0.09	16.91	-64.5	Clear
2-10-DP-22	10 - 14	2/15/10	3.5	6.98	0.450	35.7	0.26	18.26	52.5	Clear
2-10-DP-23	10 - 14	2/2/10	4.0	6.74	0.927	27.7	0.12	15.77	-45.4	Clear, yellow
2-10-DP-24	10 - 14	1/28/10	2.5	6.91	0.959	36.7	0.22	15.65	-109.8	Clear, reddish
2-10-DP-25	10 - 14	2/1/10	2.5	6.83	1.981	26.7	0.36	12.00	-69.6	Clear, reddish
2-10-DP-26	10 - 14	2/1/10	2.0	6.54	0.910	27.2	0.38	12.29	-76.6	Clear
2-10-DP-27	10 - 14	1/28/10	2.6	6.62	0.639	9.52	0.41	13.95	-106.8	Clear
2-10-DP-28	10 - 14	2/1/10	2.5	6.43	0.420	9.09	0.14	14.31	-26.9	Clear
2-10-DP-29	10 - 14	2/8/10	2.5	6.97	0.562	85.2	0.43	17.81	98.2	Clear, yellow
2-10-DP-30	10 - 14	2/15/10	2.2	7.03	0.406	7.17	0.21	13.46	41.3	Clear
2-10-DP-31	10 - 14	2/8/10	2.0	6.85	1.018	35.5	0.49	18.38	89.1	Clear, reddish
2-10-DP-32	10 - 14	2/10/10	4.2	6.97	0.909	41.4	0.12	18.29	9.0	Clear, yellow
2-10-DP-33	10 - 14	2/15/10	2.0	7.25	2.376	26.7	0.26	18.77	-29.0	Clear, yellow
2-10-DP-34	12 - 16	2/11/10	2.6	7.03	0.748	29.3	0.06	18.89	-1.4	Clear, yellow
2-10-DP-35	10 - 14	2/11/10	3.5	6.50	0.690	17.7	0.27	19.62	37.7	Clear
2-10-DP-36	10 - 14	2/11/10	2.6	6.80	0.435	9.89	0.23	19.27	11.5	Clear
2-10-DP-37	10 - 14	2/11/10	3.6	6.87	0.569	18.0	0.08	19.21	16.0	Clear
2-10-DP-37	41 - 45	2/11/10	7.2	6.68	0.935	41.0	0.04	17.59	-22.5	Clear
2-10-DP-38	10 - 14	2/13/10	4.0	6.63	1.793	9.69	0.10	19.67	-67.7	Clear
2-10-DP-38	41 - 45	2/13/10	3.6	6.87	1.651	148	0.08	19.15	-12.8	Cloudy, gray
2-10-DP-39	10 - 14	2/9/10	3.3	6.71	0.770	9.83	0.11	18.93	-91.4	Clear
2-10-DP-39	41 - 45	2/10/10	7.7	6.66	0.599	16.30	0.07	17.76	-49.2	Clear

**Table 6: Summary of Data Gap Investigation Groundwater Sampling Field Parameter Results  
2-10 Area, Boeing Plant 2**

Well or Probe Location	Screened Interval (ft)	Date	Gallons Purged	pH	Cond. (mS/cm)	Turbidity (NTU)	DO (mg/L)	Temp. (°C)	ORP (mV)	Appearance
2-10-DP-40	10 - 14	2/12/10	1.5	7.14	0.694	12.2	0.17	19.88	-59.5	Clear
2-10-DP-40	41 - 45	2/12/10	6.5	6.73	4.380	126	0.09	17.17	-43.0	Cloudy, gray
2-10-DP-41	10 - 14	2/12/10	4.1	6.62	0.679	9.32	0.06	20.07	-77.1	Clear
2-10-DP-41	41 - 45	2/12/10	3.7	6.80	2.623	110	0.11	19.37	-30.8	Cloudy, gray
2-10-DP-42	10 - 14	2/9/10	3.0	6.42	0.789	11.5	0.19	19.59	53.0	Clear
2-10-DP-42	41 - 45	2/10/10	7.5	6.55	1.623	173	0.15	17.93	68.0	Cloudy
2-10-DP-43	10 - 14	2/9/10	2.8	6.61	1.877	41.5	0.11	19.46	53.1	Clear
2-10-DP-44	10 - 14	2/23/10	2.8	7.16	0.638	8.79	0.43	18.42	57.0	Clear
2-10-DP-45	10 - 14	2/12/10	2.1	7.05	0.588	23.9	0.11	19.32	-55.8	Clear
2-10-DP-45	41 - 45	2/13/10	8.3	6.92	9.835	104.2	0.08	17.81	-9.6	Cloudy
2-10-DP-46	10 - 14	1/22/10	3.5	6.37	0.849	26.2	0.29	14.44	-54.0	Clear
2-10-DP-47	10 - 14	1/22/10	2.5	6.60	0.455	32.0	0.43	14.30	-109.5	Clear
2-10-DP-48	10 - 14	1/22/10	3.0	6.56	1.080	7.81	0.43	12.81	-57.8	Clear
2-10-DP-49	10 - 14	1/22/10	2.7	6.59	0.532	25.0	0.30	15.26	-80.8	Clear
2-10-DP-50	10 - 14	1/29/10	5.0	6.59	0.284	61.2	0.22	14.81	0.9	Clearing
2-10-DP-51	10 - 14	1/22/10	2.5	6.59	0.582	21.4	0.26	14.59	-100.8	Yellowish, clear
2-10-DP-52	10 - 14	1/22/10	4.0	6.37	0.673	22.8	0.24	14.68	-104.2	Clear
2-10-DP-53	10 - 14	1/29/10	2.2	6.47	0.118	37.9	0.79	14.89	14.5	Clear
2-10-DP-54	10 - 14	1/29/10	3.2	6.45	0.478	18.9	0.25	14.33	-65.8	Clear
2-10-DP-55	10 - 14	1/29/10	3.0	6.55	0.384	22.5	0.43	14.39	-20.5	Clear
2-10-DP-56	10 - 14	1/29/10	3.5	6.43	0.687	28.8	0.44	14.77	-7.7	Clear
2-10-DP-57	10 - 14	2/1/10	2.5	6.65	1.262	8.79	0.11	17.91	-105.1	Clear
2-10-DP-58	10 - 14	2/1/10	3.0	6.61	0.834	8.90	0.10	15.40	-108.6	Clear
2-10-DP-59	10 - 14	2/1/10	1.6	6.41	0.830	6.70	0.11	15.41	-60.7	Clear
2-10-DP-60	10 - 14	2/1/10	2.5	6.55	1.215	7.98	0.09	15.99	-83.0	Clear
2-10-DP-61	10 - 14	2/3/10	4.2	6.57	0.392	15.4	0.18	14.64	-42.9	Clear
2-10-DP-62	10 - 14	2/4/10	3.0	6.27	0.179	19.6	0.13	15.00	-5.5	Clear
2-10-DP-63	10 - 14	2/3/10	3.2	6.65	0.142	11.6	0.23	14.50	32.2	Clear
2-10-DP-64	10 - 14	2/4/10	6.0	6.85	0.132	49.2	0.10	14.60	-8.8	Cloudy
2-10-DP-65	10 - 14	2/3/10	4.5	6.66	0.791	13.0	0.12	13.71	-9.9	Clear
2-10-DP-66	10 - 14	2/4/10	5.0	6.26	0.421	6.94	0.25	17.44	20.6	Clear
2-10-DP-67	10 - 14	2/4/10	3.0	5.88	0.391	9.31	0.16	14.18	17.1	Clear
2-10-DP-68	10 - 14	2/4/10	3.6	6.43	0.860	9.54	0.11	17.50	-18.6	Clear
2-10-DP-69	10 - 14	1/28/10	2.5	6.58	0.507	6.12	2.74	15.31	37.5	Clear
2-10-DP-70	10 - 14	1/5/10	4.5	6.74	0.415	25.7	0.21	15.66	-94.6	Clear
2-10-DP-71	10 - 14	1/6/10	2.5	6.46	0.501	2.10	0.43	15.40	-24.9	Clear
2-10-DP-72	10 - 14	1/5/10	2.5	6.09	0.192	3.11	1.41	14.30	42.5	Clear, bubbly
2-10-DP-73	10 - 14	1/6/10	2.5	6.62	0.506	8.76	0.43	14.12	-75.9	Clear
2-10-DP-74	10 - 14	1/5/10	3.2	6.64	0.464	3.92	0.39	14.76	-86.8	Clear
2-10-DP-75	10 - 14	1/5/10	4.0	6.60	0.380	9.85	0.70	13.01	-61.3	Clear
2-10-DP-76	10 - 14	1/5/10	3.8	6.63	0.503	17.0	0.39	15.11	-84.7	Clear
2-10-DP-77	10 - 14	1/4/10	3.0	6.62	0.619	8.73	0.84	13.98	-85.5	Clear

**Table 6: Summary of Data Gap Investigation Groundwater Sampling Field Parameter Results  
2-10 Area, Boeing Plant 2**

Well or Probe Location	Screened Interval (ft)	Date	Gallons Purged	pH	Cond. (mS/cm)	Turbidity (NTU)	DO (mg/L)	Temp. (°C)	ORP (mV)	Appearance
2-10-DP-78	10 - 14	1/4/10	2.5	6.70	0.338	8.65	0.50	15.45	-84.0	Clear
2-10-DP-79	10 - 14	1/28/10	4.2	6.55	0.426	45.1	2.96	14.58	-1.1	Cloudy
2-10-DP-80	10 - 14	1/28/10	1.5	6.52	1.239	7.95	4.88	12.38	99.0	Clear
2-10-DP-81	12 - 16	2/17/10	4.5	6.95	0.684	26.1	4.32	15.29	35.4	Clear
2-10-DP-82	10 - 14	1/28/10	4.5	6.87	1.541	17.3	4.69	12.36	18.4	Clear
2-10-DP-83	10 - 14	2/9/10	4.7	6.57	0.811	45.9	0.13	19.63	-43.6	Clear
2-10-DP-84	10 - 14	2/9/10	3.7	6.40	0.516	18.3	0.06	19.28	-31.5	Clear
2-10-DP-85	10 - 14	2/9/10	3.5	6.66	1.294	29.9	0.12	19.54	55.9	Clear, yellow
2-10-DP-86	10 - 14	2/15/10	4.6	6.73	0.608	21.5	0.21	19.23	-71.3	Clear
2-10-DP-87	10 - 14	2/15/10	2.9	6.77	0.468	9.76	0.26	18.94	69.1	Clear
2-10-DP-88	10 - 14	2/15/10	3.1	6.73	0.700	48.0	0.26	20.52	60.8	Clear
2-10-DP-89	10 - 14	2/15/10	3.5	6.97	0.569	9.42	0.30	19.41	54.4	Clear
2-10-DP-90	10 - 14	1/21/10	2.8	6.27	0.543	9.97	2.36	19.07	-0.7	Clear
2-10-DP-90	41 - 45	1/21/10	6.5	6.70	3.163	237	0.29	17.95	-141.1	Cloudy
2-10-DP-91	10 - 14	1/20/10	3.3	6.56	6.677	9.83	0.51	18.86	-77.7	Clear
2-10-DP-91	41 - 45	1/20/10	5.0	6.78	3.865	249	0.34	19.11	-148.1	Cloudy
2-10-DP-92	10 - 14	2/17/10	4.0	6.93	0.495	24.8	0.47	18.80	5.3	Clear
2-10-DP-92	41 - 45	2/17/10	4.2	6.72	0.598	27.9	0.20	18.47	-97.2	Clear
2-10-DP-93	10 - 14	2/17/10	6.2	7.00	0.161	29.7	0.31	18.51	-8.4	Clear
2-10-DP-93	41 - 45	2/18/10	6.1	6.95	4.793	27.2	0.26	17.05	56.9	Clear
2-10-DP-94	10 - 14	2/16/10	2.5	6.57	0.542	34.3	0.16	19.83	-70.3	Cloudy
2-10-DP-94	41 - 45	2/16/10	2.6	6.56	0.533	81.4	0.08	19.78	-56.0	Clear
2-10-DP-95	12 - 16	2/19/10	6.0	7.09	0.371	50.7	0.32	19.23	-71.4	Clearing
2-10-DP-95	41 - 45	2/22/10	4.0	6.80	3.241	51.5	0.06	19.26	-66.5	Clearing
2-10-DP-96	10 - 14	2/19/10	5.5	6.95	0.219	12.9	0.29	19.41	-30.4	Clear
2-10-DP-96	41 - 45	2/19/10	6.9	7.08	1.891	40.2	0.25	19.01	-95.7	Clearing
2-10-DP-97	10 - 14	1/20/10	2.5	6.90	0.596	9.53	0.52	18.56	-159.9	Clear
2-10-DP-97	41 - 45	1/20/10	6.0	6.69	6.957	95.7	0.22	17.97	-114.3	Cloudy
2-10-DP-98	10 - 14	1/19/10	2.5	6.95	0.640	14.0	0.64	18.87	-91.4	Clear
2-10-DP-98	41 - 45	1/19/10	7.5	6.83	10.99	33.9	0.17	17.97	-159.8	Clear
2-10-DP-99	10 - 14	1/19/10	2.8	6.84	0.525	9.46	0.42	18.93	38.7	Clear
2-10-DP-99	41 - 45	1/19/10	4.5	6.77	8.901	219	0.26	18.26	-145.0	Cloudy
2-10-DP-100	10 - 14	1/18/10	3.2	6.74	0.955	9.00	0.50	19.47	-54.7	Clear
2-10-DP-100	41 - 45	1/18/10	7.0	6.74	9.861	7.91	0.24	19.12	-126.3	Clear
2-10-DP-101	10 - 14	2/22/10	4.0	7.15	0.674	8.99	0.27	19.96	51.4	Clear
2-10-DP-101	41 - 45	2/22/10	6.5	7.17	7.564	7.98	0.19	19.40	41.4	Clear
2-10-DP-102	10 - 14	2/18/10	2.5	7.08	1.008	8.22	0.32	19.78	44.3	Clear
2-10-DP-102	41 - 45	2/18/10	9.0	7.03	13.32	30.6	0.25	19.97	-1.6	Clear
2-10-DP-103	10 - 14	2/16/10	2.0	6.58	0.563	7.37	0.17	19.88	-76.6	Clear
2-10-DP-104	10 - 14	2/23/10	3.6	7.30	0.801	7.27	0.23	14.85	50.3	Clear
2-10-DP-105	10 - 14	2/16/10	1.6	7.07	0.562	15.8	0.13	21.30	-30.3	Clear
2-10-DP-106	10 - 14	2/22/10	3.5	6.81	0.528	9.87	0.37	18.26	81.8	Clear
2-10-DP-107	10 - 14	1/21/10	3.0	6.74	0.709	9.62	0.37	19.31	83.1	Clear

**Table 6: Summary of Data Gap Investigation Groundwater Sampling Field Parameter Results  
2-10 Area, Boeing Plant 2**

Well or Probe Location	Screened Interval (ft)	Date	Gallons Purged	pH	Cond. (mS/cm)	Turbidity (NTU)	DO (mg/L)	Temp. (°C)	ORP (mV)	Appearance
2-10-DP-108	10 - 14	1/21/10	3.0	6.48	0.950	14.2	2.69	20.21	35.0	Clear
2-10-DP-109	10 - 14	2/16/10	4.0	6.57	0.494	19.0	0.26	19.41	46.9	Clear
2-10-DP-110	10 - 14	1/21/10	2.0	6.81	0.523	9.48	0.37	20.80	-103.4	Clear
2-10-DP-111	10 - 14	1/4/10	5.0	6.87	0.460	53.0	0.55	14.11	-91.0	Clearing
2-10-DP-112	10 - 14	1/4/10	2.6	6.52	0.536	22.7	0.90	14.95	-80.4	Clear
PL2-201A	9 - 19	3/2/10	1.8	6.90	0.607	3.12	0.23	15.87	70.5	Clear
PL2-201B	35.5 - 45.5	3/2/10	2.0	7.28	1.576	4.96	0.20	14.92	-2.1	Clear
PL2-201C	65.5 - 75.5	3/2/10	4.0	6.95	4.865	11.6	0.16	14.56	7.3	Clear
PL2-202A	8 - 18	3/3/10	1.5	6.61	0.779	1.08	0.13	15.19	10.4	Clear
PL2-203A	9 - 19	3/3/10	4.0	7.00	0.582	2.94	0.14	14.01	32.7	Clear
PL2-204A	7.5 - 17.5	3/3/10	4.0	6.68	0.388	9.02	0.13	13.68	20.6	Clear
PL2-206A	7.5 - 17.5	3/17/10	1.2	7.28	0.305	8.77	0.45	15.07	35.4	Clear
PL2-207A	8 - 18	3/15/10	4.0	7.15	0.629	0.00	0.57	16.71	-55.3	Clear
PL2-208A	7 - 16.5	3/16/10	3.0	6.84	0.448	21.3	0.62	15.07	15.4	Clearing
PL2-209A	8 - 17.5	3/17/10	4.5	8.08	1.554	0.34	0.25	18.32	-87.1	Clear
PL2-209B	40 - 55	3/17/10	1.9	7.82	19.17	0.69	0.29	17.45	-74.5	Clear
PL2-210A	6 - 16	3/4/10	1.8	7.00	0.525	1.75	0.10	18.92	208.6	Clear, colorless
PL2-211A	9 - 19	3/3/10	2.5	7.08	0.218	24.9	0.14	15.34	8.5	Clear
PL2-212A	6 - 16	3/17/10	2.2	8.50	1.421	3.12	0.29	19.72	-18.5	Clear, tea-like
PL2-213A	15 - 30	3/8/10	2.3	6.93	0.342	9.67	0.28	18.73	-101.9	Clear
PL2-213B	25.7 - 30.2	3/8/10	3.0	6.96	0.436	29.0	0.43	18.57	-86.0	Clear
PL2-214A	15 - 30	3/5/10	1.5	7.04	0.573	1.84	0.74	17.55	-100.7	Clear
PL2-214B	45 - 60	3/5/10	3.0	7.21	26.96	2.66	0.68	17.25	-103.1	Clear
PL2-214C	75.5 - 80	3/5/10	2.0	7.23	41.34	7.92	0.83	17.01	-111.1	Clear
PL2-216A	15 - 30	3/5/10	3.7	7.34	0.534	2.22	0.59	18.25	-88.2	Clear
PL2-217A	15 - 30	3/4/10	3.0	7.15	0.556	0.98	0.11	18.38	-108.0	Clear
PL2-218A	15 - 30	3/18/10	1.8	8.25	0.628	0.67	0.25	18.82	-73.2	Clear
PL2-218B	45 - 60	3/18/10	3.2	6.80	29.66	0.71	0.23	17.05	-101.9	Clear
PL2-222A	9 - 19	3/15/10	1.5	7.08	0.986	0.08	0.63	15.36	4.4	Clear
PL2-223A	14 - 19	3/15/10	2.5	7.15	0.729	0.24	0.45	17.28	-41.6	Clear
PL2-224A	10 - 20	3/2/10	3.0	7.16	0.496	17.2	0.14	16.28	-6.5	Clear
PL2-227A	6 - 16.5	3/16/10	2.0	7.15	0.457	0.22	4.85	14.87	28.5	Clear
PL2-227B	35 - 45	3/16/10	3.0	7.62	0.970	2.09	0.58	15.46	-21.8	Clear
PL2-227C	74.5 - 84.5	3/16/10	4.5	8.54	39.80	5.19	0.22	15.17	-76.5	Clear
PL2-230A	5 - 20	3/9/10	2.4	7.47	2.276	3.01	0.32	15.23	-33.8	Clear
PL2-231A	5 - 20	3/9/10	2.0	6.99	0.533	25.4	0.43	16.99	-54.9	Clear
PL2-232A	5 - 20	3/9/10	5.0	7.34	0.400	4.35	0.28	20.10	-82.2	Clear
PL2-235A	8 - 18	3/10/10	3.7	7.72	0.549	3.60	0.35	19.06	-68.7	Clear
PL2-240A	8 - 18	3/4/10	1.5	7.15	0.548	1.17	0.12	18.60	204.9	Clear, colorless
PL2-241A	7.5 - 22.5	3/15/10	2.2	7.42	0.551	2.82	0.72	14.54	0.0	Clear
PL2-242A	7.5 - 22.5	3/15/10	2.0	7.17	0.361	4.36	0.49	16.47	16.2	Clear



**Table 6: Summary of Data Gap Investigation Groundwater Sampling Field Parameter Results  
2-10 Area, Boeing Plant 2**

Well or Probe Location	Screened Interval (ft)	Date	Gallons Purged	pH	Cond. (mS/cm)	Turbidity (NTU)	DO (mg/L)	Temp. (°C)	ORP (mV)	Appearance
PL2-243A	7.5 - 22.5	3/15/10	2.3	7.15	0.282	8.05	0.73	15.72	23.3	Clear
PL2-244A	15 - 20	3/11/10	2.0	7.50	0.681	6.22	0.20	18.97	-97.5	Clear
PL2-245A	15 - 20	3/18/10	2.5	8.21	0.597	2.67	0.40	19.52	-77.4	Clear
PL2-246A	15 - 20	3/11/10	2.0	7.46	0.630	2.77	0.28	18.38	-89.6	Clear
PL2-247A	15 - 20	3/18/10	2.5	8.43	0.596	0.46	0.27	18.77	-79.6	Clear
PL2-248A	15 - 20	3/11/10	2.0	8.70	0.460	5.69	0.32	18.82	-25.5	Clear
PL2-249A	15 - 20	3/12/10	2.3	7.07	0.373	2.65	0.29	18.60	-72.8	Clear
PL2-252A	13.5 - 18.5	3/8/10	1.4	6.85	0.827	2.63	0.49	18.82	-83.1	Clear
PL2-253A	12 - 17	3/12/10	2.5	7.09	0.649	2.54	0.32	18.87	-46.8	Clear
PL2-254A	13.5 - 18.5	3/8/10	2.0	6.92	0.323	2.76	0.29	19.37	-99.5	Clear
PL2-255A	12.5 - 17.5	3/12/10	3.5	7.97	0.472	3.60	0.33	19.55	-15.9	Clear
PL2-256A	13 - 18	3/12/10	2.0	7.06	0.289	2.65	0.38	18.38	-48.5	Clear
PL2-257A	13 - 18	3/9/10	2.3	7.78	0.983	3.03	0.40	18.63	4.9	Clear
PL2-258A	8 - 23	3/10/10	2.5	7.82	0.643	9.28	0.36	17.46	-70.2	Clear
PL2-258B	40 - 50	3/10/10	2.3	7.26	24.38	4.36	0.29	16.30	-95.2	Clear
PL2-258C	92 - 102	3/10/10	2.2	6.80	34.99	3.51	0.25	16.45	-5.0	Clear
PL2-259B	40 - 50	3/11/10	2.9	9.12	1.027	3.14	0.31	16.61	-57.6	Clear
PL2-260A	8 - 18	3/3/10	3.0	6.58	0.555	4.06	0.15	13.89	19.8	Clear
PL2-261B	40 - 50	3/8/10	3.0	6.89	21.58	1.84	0.81	18.12	-74.9	Clear
PL2-262B	40 - 50	3/9/10	3.5	7.49	2.778	2.92	0.27	16.96	-102.4	Clear
PL2-266A	26 - 30.2	3/8/10	2.2	6.97	0.345	4.37	0.36	18.40	-102.8	Clear
PL2-267A	26 - 30.5	3/5/10	2.5	6.95	0.484	1.23	0.83	17.54	-104.8	Clear, colorless
PL2-268AR	30 - 34.5	3/10/10	2.9	7.43	0.887	4.13	0.26	17.58	-64.6	Clear
PL2-269A	31 - 35.7	3/11/10	2.5	7.25	0.814	2.21	0.34	17.60	-48.0	Clear
PL2-271A	20.2 - 29.7	3/4/10	1.0	7.06	0.609	1.41	0.12	19.06	205.7	Clear
PL2-272A	31.3 - 35.8	3/4/10	2.1	7.41	0.531	1.52	0.30	17.98	-90.5	Clear
PL2-BF02A	--	3/4/10	5.0	6.67	0.356	25.3	0.16	13.58	229.7	Clear, orange

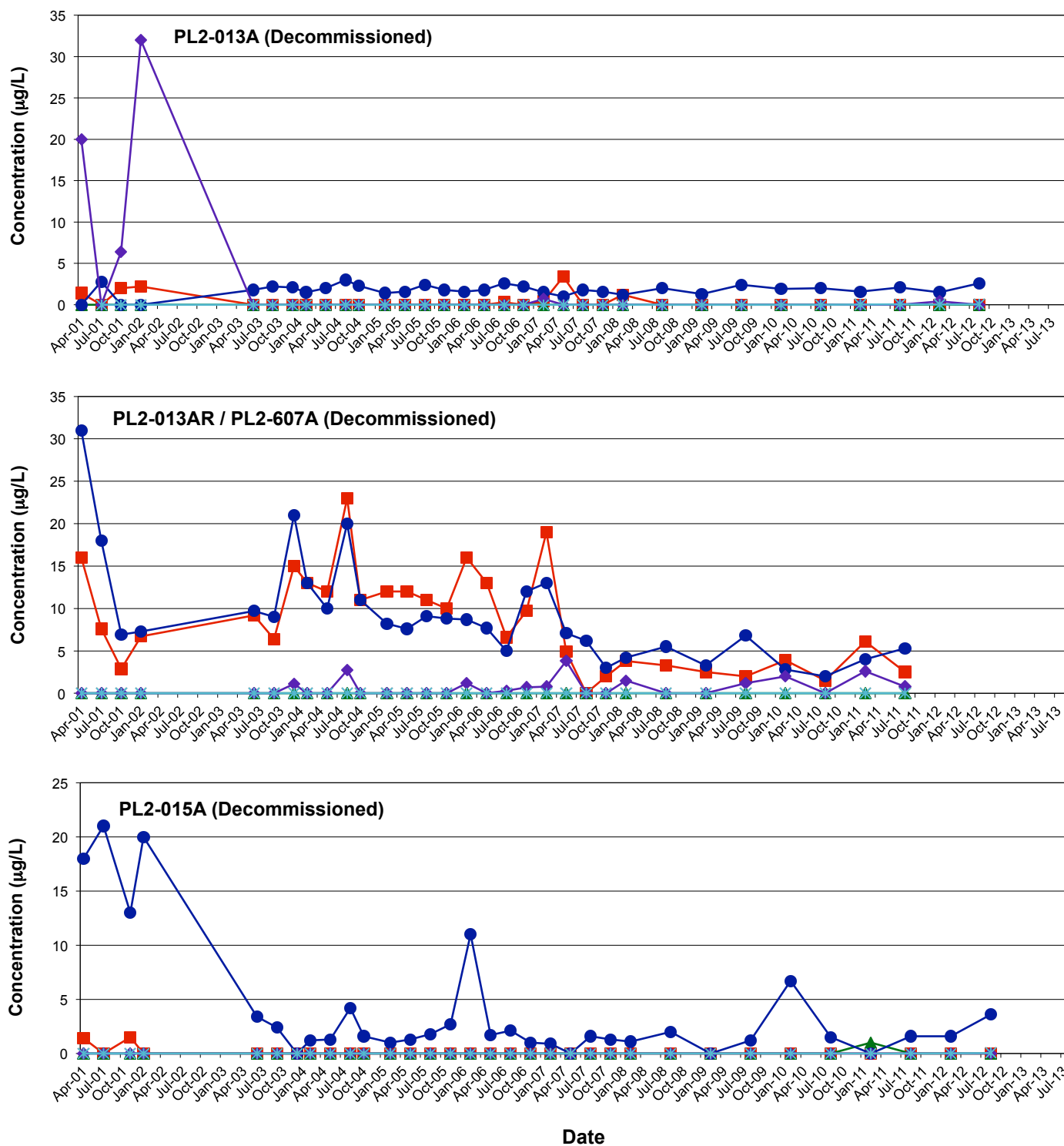
**Table 7: Summary of Data Gap Investigation Groundwater Sampling Field Parameter Results  
North Area, Boeing Plant 2**

Well or Probe Location	Well or Probe Depth (ft)	Screened Interval	Date	Gallons Purged	pH	Cond. (mS/cm)	Turbidity (NTU)	DO (mg/L)	Temp. (°C)	ORP (mV)	Appearance
NA-DP-01	16.0	12 to 16	9/4/08	3.5	6.71	1.256	19.8	0.17	13.16	116	clear
NA-DP-02	14.0	10 to 14	9/4/08	1.5	6.60	3.454	9.84	0.14	12.98	109.2	clear
NA-DP-02	32.0	28 to 32	9/4/08	3.3	7.14	2.716	290	0.20	15.14	104	clear
NA-DP-03	14.0	10 to 14	9/3/08	3.0	6.58	8.018	2.01	0.20	13.96	145.5	cloudy
NA-DP-04	14.0	10 to 14	9/3/08	2.1	6.92	0.745	6.67	0.18	13.23	119.1	clear
NA-DP-05	14.0	10 to 14	9/8/08	2.6	6.29	2.308	10.09	0.21	14.21	192.1	yellow
NA-DP-06	14.0	10 to 14	9/4/08	2.8	7.27	0.595	9.71	0.17	16.27	21.6	cloudy
NA-DP-07	14.0	10 to 14	9/4/08	2.6	7.47	1.833	9.93	0.19	18.89	31.8	clear
NA-DP-08	14.0	10 to 14	9/2/08	1.5	7.45	0.701	7.33	0.05	15.32	-6.7	clearing
NA-DP-09	14.0	10 to 14	8/25/08	4.1	7.64	0.463	9.96	0.04	14.93	-13.7	cloudy
NA-DP-10	14.0	10 to 14	8/25/08	3.0	6.74	0.571	8.37	0.06	15.89	6.2	clear
NA-DP-11	16.0	12 to 16	8/25/08	4.2	6.75	0.495	122	0.04	14.61	-58.2	cloudy
NA-DP-12	14.0	10 to 14	8/28/08	2.5	6.60	0.380	9.38	0.07	16.70	42.4	clearing
NA-DP-13	14.0	10 to 14	8/25/08	3.2	6.52	0.526	16.76	0.08	16.12	-75.7	clearing
NA-DP-14	14.0	10 to 14	9/2/08	4.0	6.79	0.438	8.94	0.06	22.14	-25.9	clear
NA-DP-15	14.0	10 to 14	8/25/08	3.1	6.52	0.535	7.32	0.05	15.21	-1.2	clear
NA-DP-16	14.0	10 to 14	9/2/08	2.5	6.76	0.584	9.43	0.09	14.50	49.3	clear
NA-DP-17	14.0	10 to 14	8/26/08	5.0	7.33	0.584	5.78	0.03	16.78	32.2	clear
NA-DP-18	14.0	10 to 14	8/26/08	4.2	7.02	0.522	419	0.05	18.37	33.0	clear
NA-DP-19	18.0	14 to 18	8/26/08	3.7	7.11	0.719	128	0.03	15.38	-66.0	clear
NA-DP-20	14.0	10 to 14	8/26/08	4.6	6.46	0.161	44.1	0.04	17.01	17.5	clear
NA-DP-21	16.0	12 to 16	8/26/08	5.0	7.00	0.581	118	0.03	15.29	4.1	cloudy
NA-DP-22	14.0	10 to 14	8/26/08	4.5	6.85	0.279	36.2	0.03	18.69	-0.3	cloudy
NA-DP-23	14.0	10 to 14	8/27/08	4.0	6.68	0.653	30.4	0.06	19.16	-22.7	silty
NA-DP-24	14.0	10 to 14	9/8/08	3.5	8.85	4.235	40.9	0.08	19.68	48.5	cloudy
NA-DP-25	14.0	10 to 14	8/27/08	6.6	6.97	1.135	8.62	0.07	19.20	-48.0	clear
NA-DP-26	14.0	10 to 14	8/27/08	6.2	6.75	0.124	23.6	0.06	17.00	-2.9	cloudy
NA-DP-27	14.0	10 to 14	8/27/08	4.1	7.79	0.177	12.89	0.05	18.81	28.6	clear
NA-DP-28	14.0	10 to 14	8/27/08	5.6	6.67	0.126	23.5	0.07	18.87	4.1	clear
NA-DP-29	14.0	10 to 14	9/8/08	1.5	7.55	3.138	20.3	0.20	23.46	134.8	clear
NA-DP-30	14.0	10 to 14	8/28/08	2.5	9.38	0.642	4.86	0.08	16.96	39.7	clear
NA-DP-31	14.0	10 to 14	9/9/08	3.9	6.60	0.464	9.86	0.15	15.43	103.4	clear
NA-DP-32	14.0	10 to 14	9/9/08	4.7	7.20	0.791	13.21	0.15	16.60	81.9	cloudy
NA-DP-33	14.0	10 to 14	8/28/08	1.7	6.40	6.483	24.5	0.15	16.06	75.5	cloudy
NA-DP-34	14.0	10 to 14	8/28/08	5.0	6.38	0.560	13.76	0.13	15.34	40.2	clear
NA-DP-35	14.0	10 to 14	9/10/08	2.8	6.26	0.831	21.1	0.18	17.72	99.9	clear
NA-DP-36	18.0	14 to 18	9/5/08	4.5	6.44	0.510	52.8	0.21	13.16	123.2	cloudy
NA-DP-36	45.0	41 to 45	9/5/08	2.4	6.37	23.65	259	0.23	15.33	186.5	clearing
NA-DP-37	16.0	12 to 16	9/9/08	4.0	6.76	6.468	21.6	0.18	16.58	116.8	clear
NA-DP-37	45.0	41 to 45	9/9/08	3.5	6.72	28.70	281	0.17	15.80	173.5	clear
NA-DP-38	18.0	14 to 18	9/4/08	4.0	6.85	1.052	16.06	0.20	13.15	121.6	clear
NA-DP-38	45.0	41 to 45	9/4/08	3.2	7.61	29.85	273	0.11	15.14	10.4	cloudy
NA-DP-39	18.0	14 to 18	9/5/08	3.2	6.45	2.951	8.93	0.20	13.31	148.7	cloudy
NA-DP-39	41.0	37 to 41	9/5/08	3.2	6.86	32.30	381	0.19	16.60	159.9	clear
NA-DP-40	16.0	12 to 16	9/9/08	4.3	6.09	1.783	9.87	0.18	13.36	164.0	clear
NA-DP-40	45.0	41 to 45	9/9/08	2.8	6.65	28.85	483	0.19	14.93	185.0	clearing
NA-DP-41	14.0	10 to 14	9/3/08	2.8	7.05	5.650	3.6	0.19	14.78	62.1	clear
NA-DP-41	14.0	12 to 14	9/3/08	2.6	7.06	5.794	9.86	0.13	15.84	63.1	cloudy
NA-DP-41	45.0	41 to 45	9/3/08	3.2	7.64	33.98	329	0.15	15.88	96.1	cloudy

**Table 7: Summary of Data Gap Investigation Groundwater Sampling Field Parameter Results  
North Area, Boeing Plant 2**

Well or Probe Location	Well or Probe Depth (ft)	Screened Interval	Date	Gallons Purged	pH	Cond. (mS/cm)	Turbidity (NTU)	DO (mg/L)	Temp. (°C)	ORP (mV)	Appearance
NA-DP-42	14.0	10 to 14	9/3/08	2.5	6.43	19.42	9.46	0.18	14.38	166.5	clear
NA-DP-42	32.0	28 to 32	9/3/08	3.0	7.07	3.544	316	0.13	14.65	118.6	clear
NA-DP-42	45.0	41 to 45	9/3/08	2.7	6.97	32.16	362	0.16	14.63	97.3	cloudy
NA-DP-43	14.0	10 to 14	9/8/08	3.5	6.09	7.152	8.84	0.19	14.28	156.0	clear
NA-DP-43	45.0	41 to 45	9/8/08	2.6	6.24	24.17	396	0.15	15.72	112.9	clear
NA-DP-44	55.0	51 to 55	9/11/08	1.2	6.23	3.287	478	0.20	19.17	153.7	cloudy
NA-DP-44	65.0	61 to 65	9/11/08	1.5	6.39	4.830	468	0.19	18.47	135.0	clear
NA-DP-44	75.0	71 to 75	9/11/08	1.5	6.60	5.612	73.1	0.25	18.67	126.7	clear
NA-DP-44	85.0	81 to 85	9/11/08	3.0	7.12	11.54	415	0.14	20.45	81.6	cloudy
NA-DP-45	55.0	51 to 55	9/10/08	1.5	5.92	25.69	5.39	0.15	15.87	191.0	cloudy
NA-DP-45	65.0	61 to 65	9/10/08	1.5	6.11	30.07	267	0.13	15.88	186.3	clear
NA-DP-45	75.0	71 to 75	9/10/08	1.5	6.66	33.53	260	0.07	16.76	160.8	cloudy
NA-DP-45	85.0	81 to 85	9/10/08	1.4	6.93	36.87	284	0.19	17.58	139.5	clear
NA-DP-45	95.0	91 to 95	9/10/08	3.0	7.08	32.20	45.9	0.14	18.78	101.0	cloudy
NA-DP-46	55.0	51 to 55	8/29/08	2.5	6.50	36.72	372	0.07	17.41	-64.5	cloudy
NA-DP-46	65.0	61 to 65	8/29/08	1.9	6.72	38.14	367	0.04	17.55	-86.4	cloudy
NA-DP-46	75.0	71 to 75	8/29/08	1.5	6.99	38.95	294	0.05	19.16	-76.1	clear
NA-DP-46	85.0	81 to 85	9/2/08	1.6	6.73	34.18	217	0.12	14.54	191.6	cloudy
NA-DP-46	88.0	88 to 92	9/2/08	3.5	6.83	35.97	347	0.10	16.06	122.0	cloudy
NA-DP-46	92.0	88 to 92	9/2/08	4.0	6.85	35.12	106	0.08	15.14	-84.1	clearing
PL2-270A	17.5	12.5 to 17.5	10/27/08	3.2	4.38	0.295	2.97	0.19	18.85	24.3	clear
PL2-270B	45.0	35 to 45	10/27/08	5.5	5.83	1.043	14.2	0.28	18.28	-75.4	yellow
PL2-609A	21.0	6 to 21	10/24/08	3.5	7.20	1.620	12.4	0.20	12.66	20.9	clear
PL2-610A	21.0	6 to 21	10/22/08	2.0	7.22	0.669	13.8	0.38	14.41	34.2	clear
PL2-610B	45.0	35 to 45	10/22/08	3.0	6.51	8.644	10.94	0.22	14.90	76.3	clear
PL2-611A	21.0	6 to 21	10/22/08	4.8	6.32	1.845	8.68	0.17	13.96	143.9	clear
PL2-612A	21.0	6 to 21	10/24/08	2.2	3.04	0.506	17.6	0.13	13.71	48.8	clear
PL2-612B	45.0	35 to 45	10/24/08	2.8	3.14	11.96	9.98	0.14	13.12	24.2	clear

**Attachment C**  
**Shoreline Monitoring Wells Time Series Graphs**



#### Legend

- cis-1,2-Dichloroethene
- trans-1,2-Dichloroethene
- Trichloroethene
- Vinyl Chloride
- Tetrachloroethene

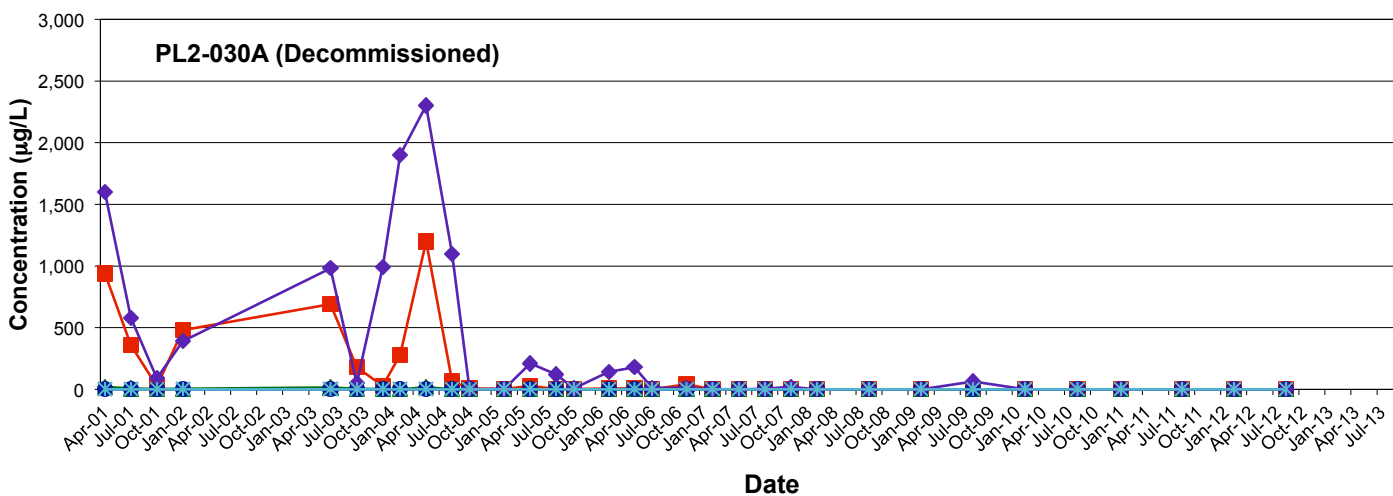
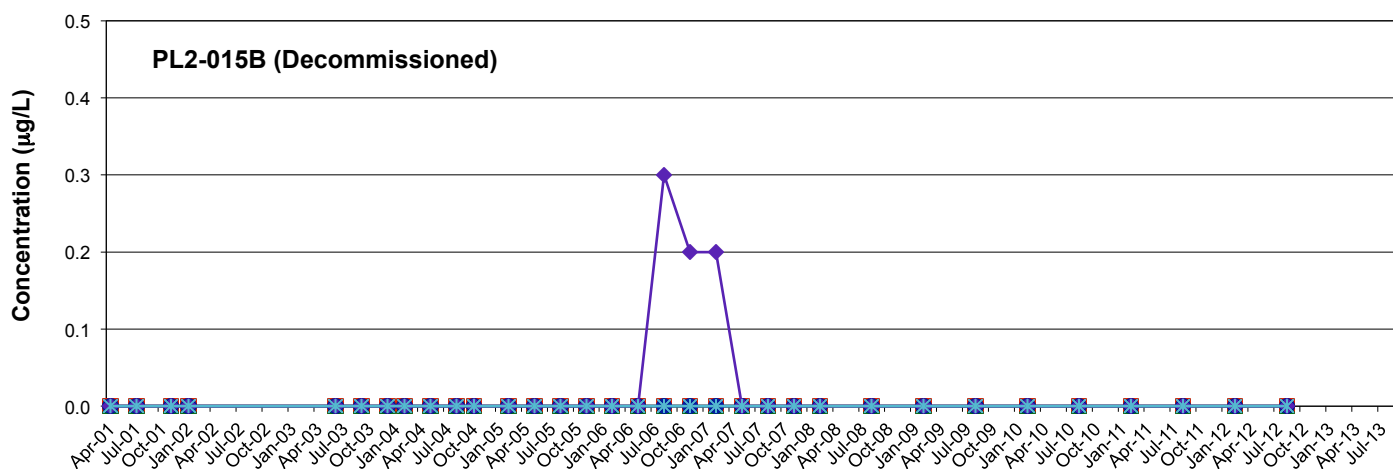
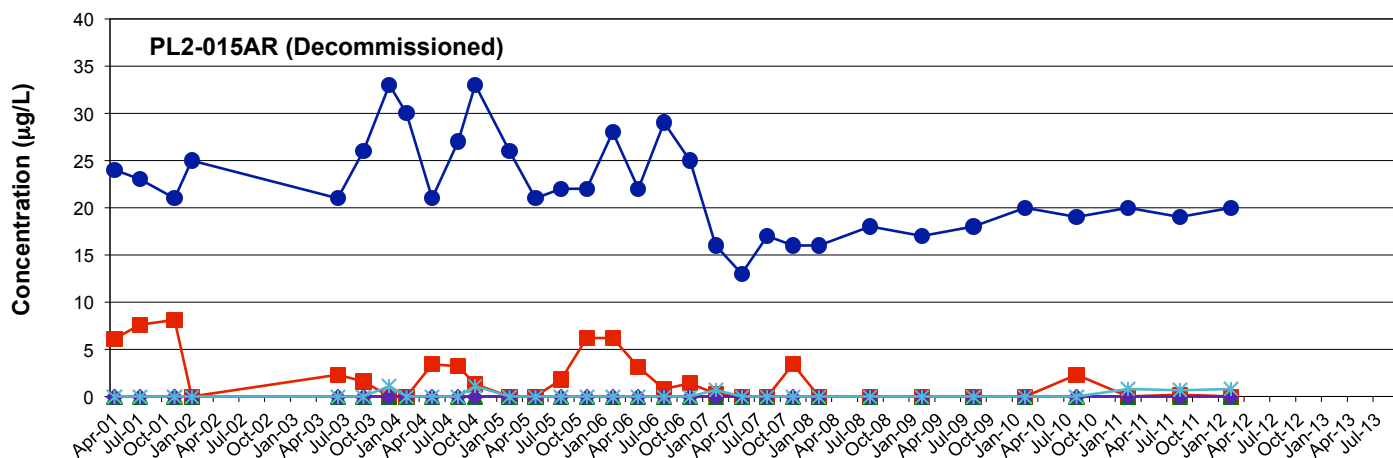


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**FIGURE 2-2a**  
**CHLORINATED VOC TRENDS AT**  
**PL2-013A, PL2-013AR, AND PL2-015A**

Project	Boeing Plant 2		
Prepared For	The Boeing Company		
Location	7725 East Marginal Way Seattle/Tukwila, Washington		
Drawn By	DCK	Reviewed By	DCK
		Date	9/25/13



Date

**Legend**

- cis-1,2-Dichloroethene
- ▲— trans-1,2-Dichloroethene
- Trichloroethene
- ◆— Vinyl Chloride
- \*— Tetrachloroethene

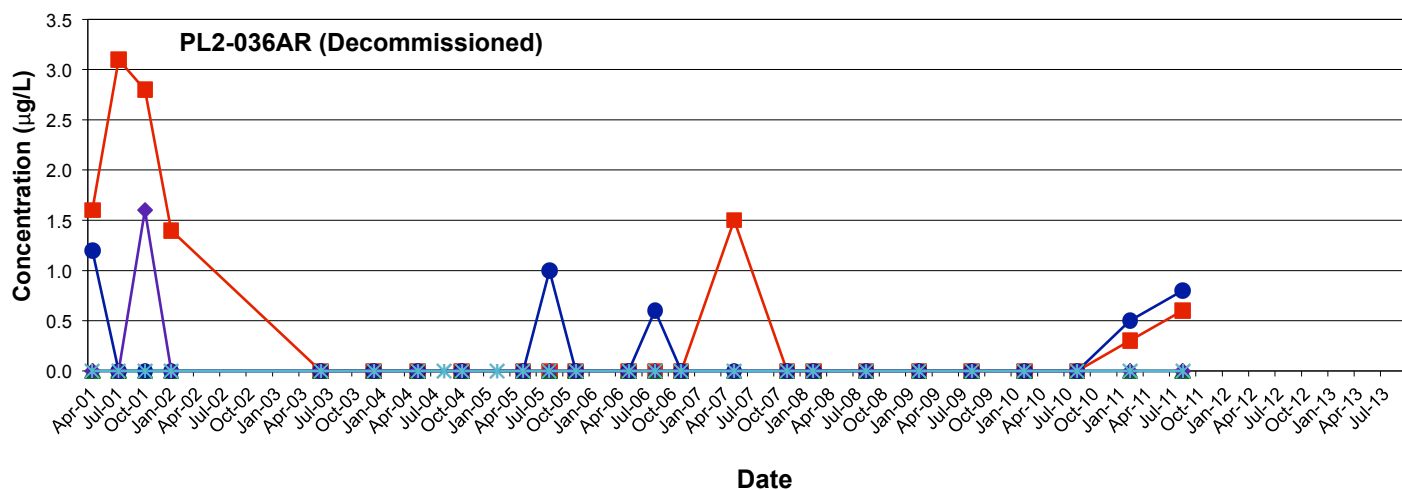
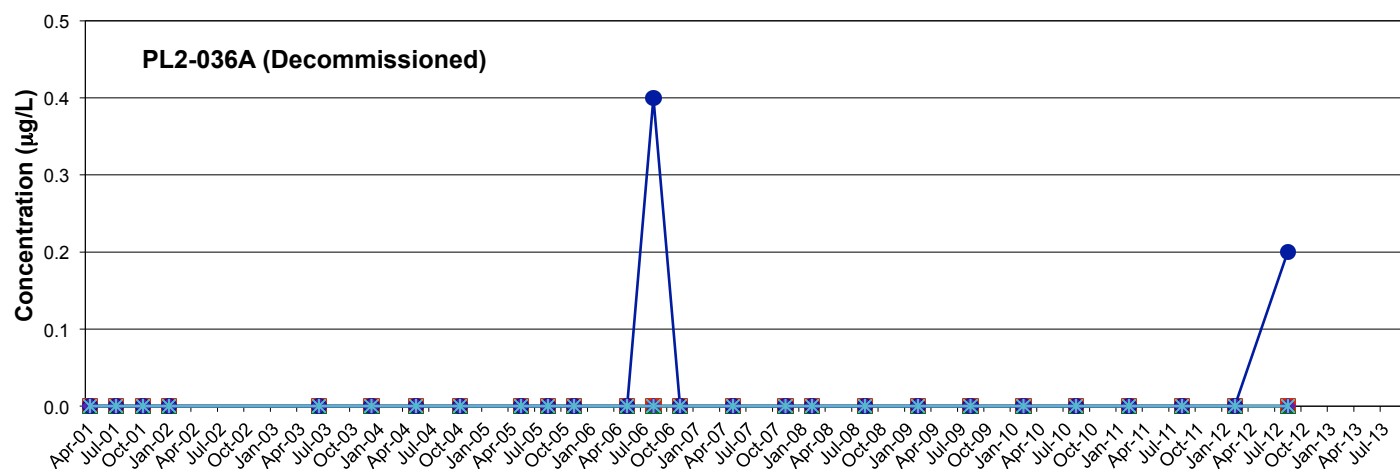
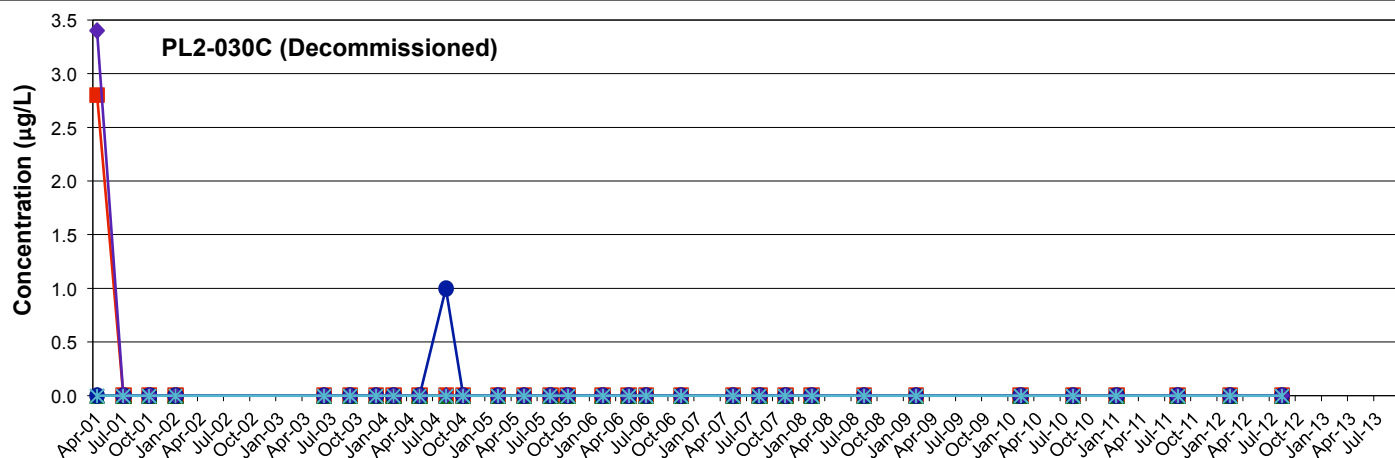


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**FIGURE 2-2b**  
**CHLORINATED VOC TRENDS AT**  
**PL2-015AR, PL2-015B, AND PL2-030A**

Project	Boeing Plant 2		
Prepared For	The Boeing Company		
Location	7725 East Marginal Way Seattle/Tukwila, Washington		
Drawn By	DCK	Reviewed By	DCK
		Date	9/25/13



**Legend**

- cis-1,2-Dichloroethene
- ▲— trans-1,2-Dichloroethene
- Trichloroethene
- ◆— Vinyl Chloride
- \*— Tetrachloroethene

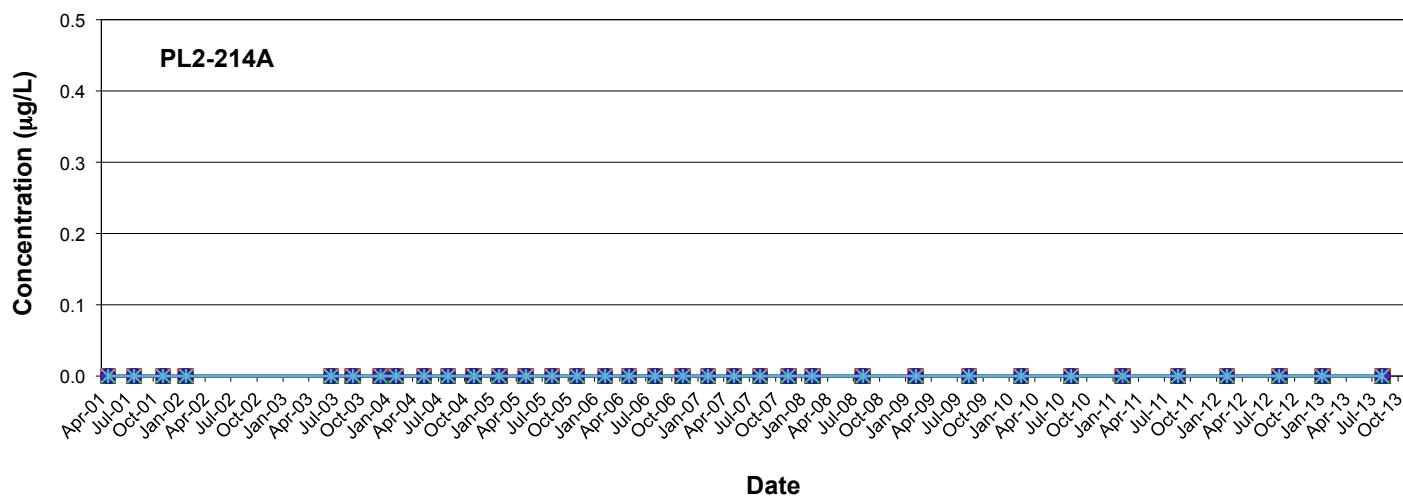
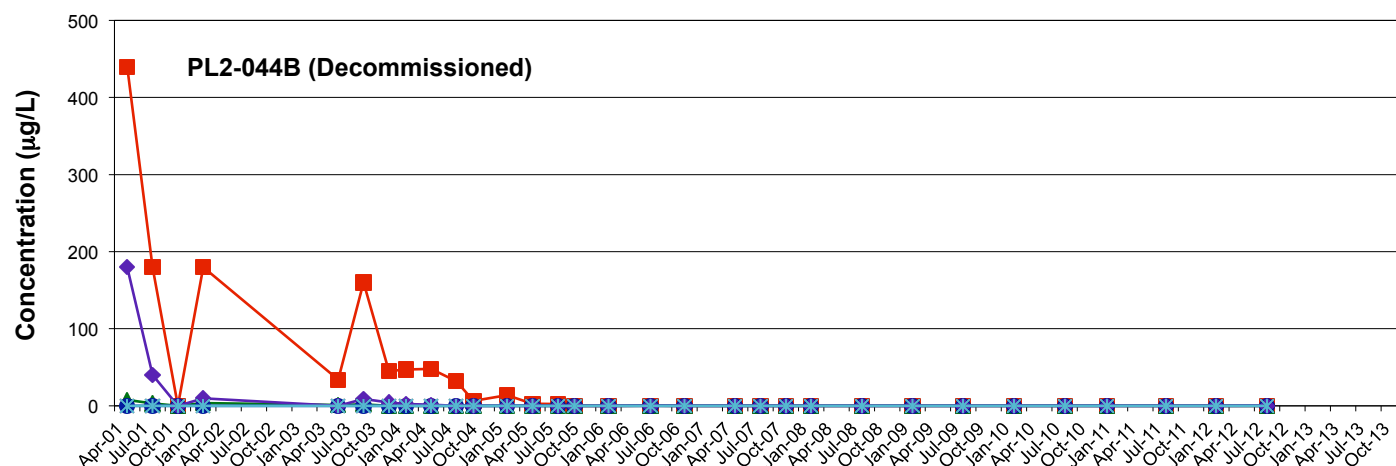
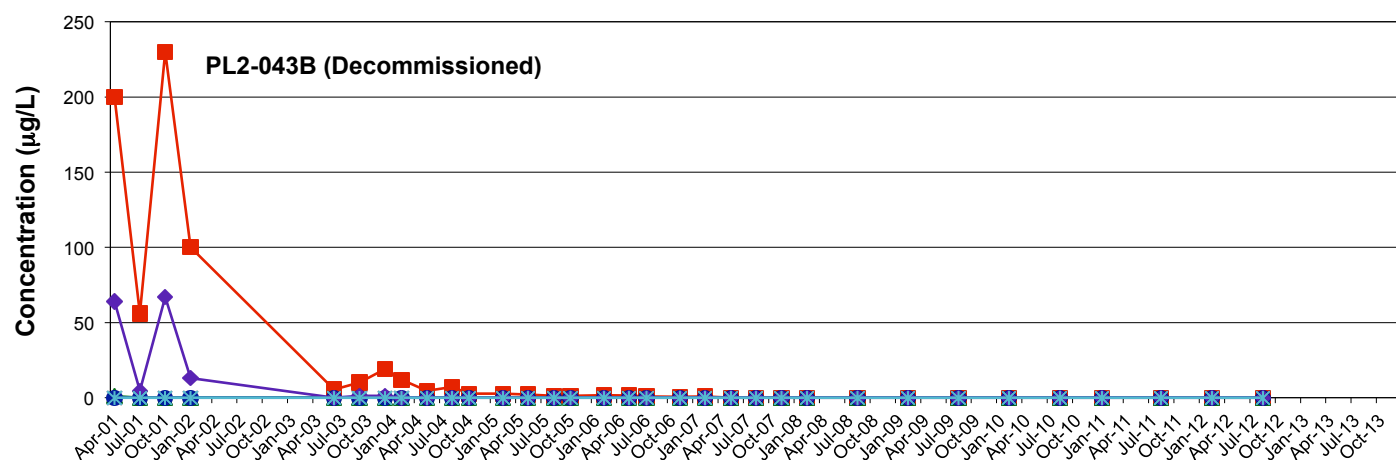


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**FIGURE 2-2c  
CHLORINATED VOC TRENDS AT  
PL2-030C, PL2-036A, AND PL2-036AR**

Project	Boeing Plant 2		
Prepared For	The Boeing Company		
Location	7725 East Marginal Way Seattle/Tukwila, Washington		
Drawn By	DCK	Reviewed By	DCK
		Date	9/25/13



**Legend**

- cis-1,2-Dichloroethene
- ▲ trans-1,2-Dichloroethene
- Trichloroethene
- ◆ Vinyl Chloride
- ✱ Tetrachloroethene



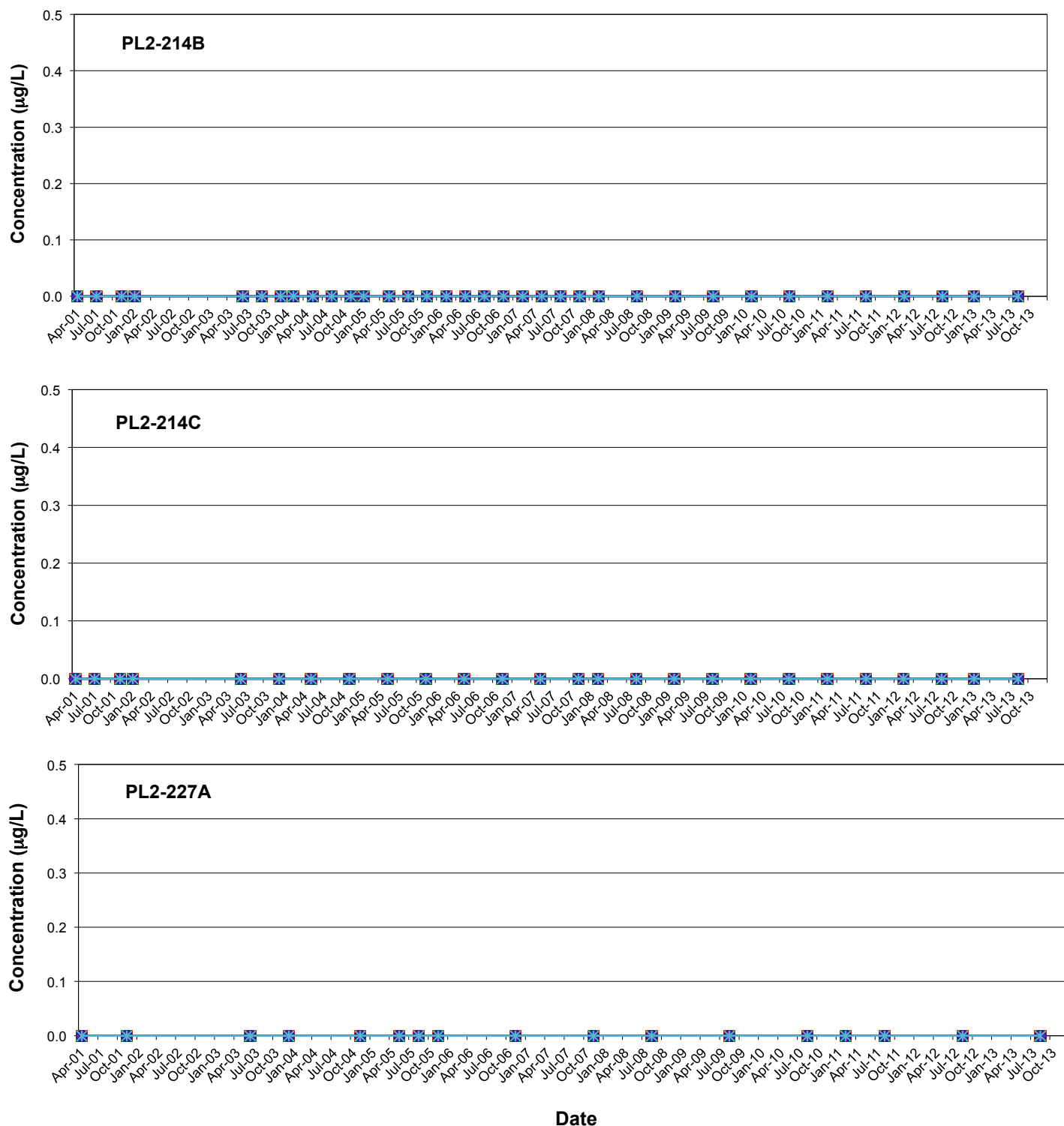
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**FIGURE 2-2d**  
**CHLORINATED VOC TRENDS AT**  
**PL2-043B, PL2-044B, AND PL2-214A**

Project	Boeing Plant 2		
Prepared For	The Boeing Company		
Location	7725 East Marginal Way Seattle/Tukwila, Washington		
Drawn By	DCK	Reviewed By	DCK
		Date	9/25/13





Date

**Legend**

- cis-1,2-Dichloroethene
- ▲ trans-1,2-Dichloroethene
- Trichloroethene
- ◆ Vinyl Chloride
- ✱ Tetrachloroethene

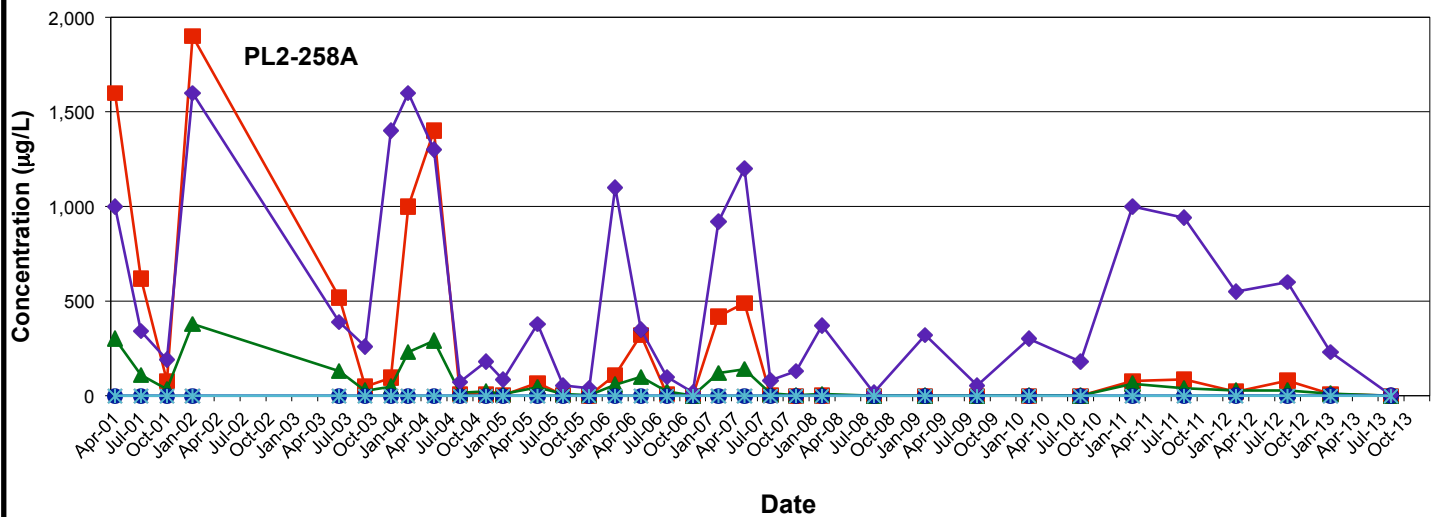
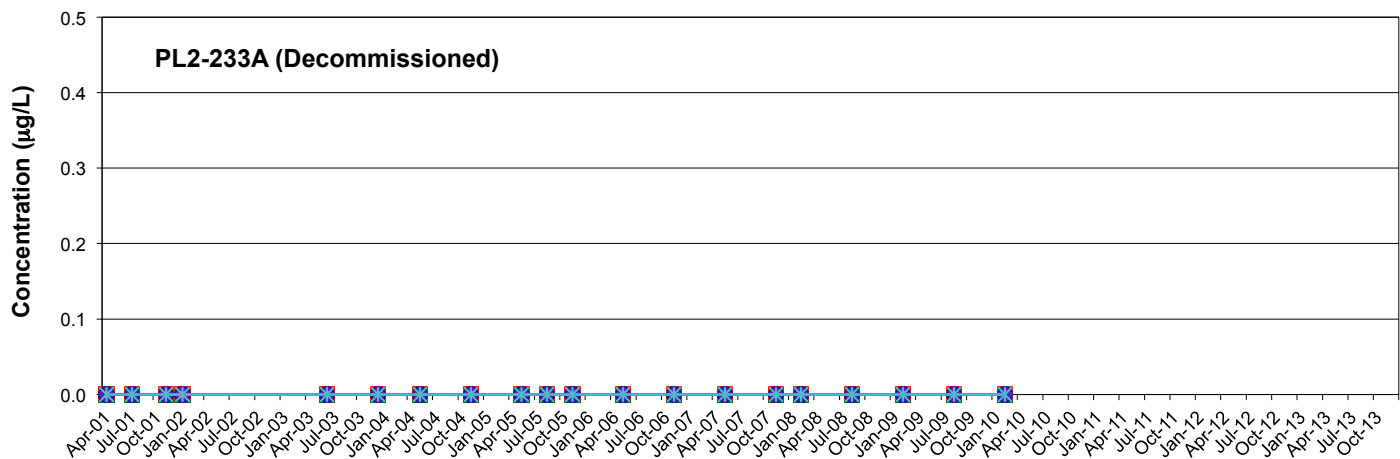
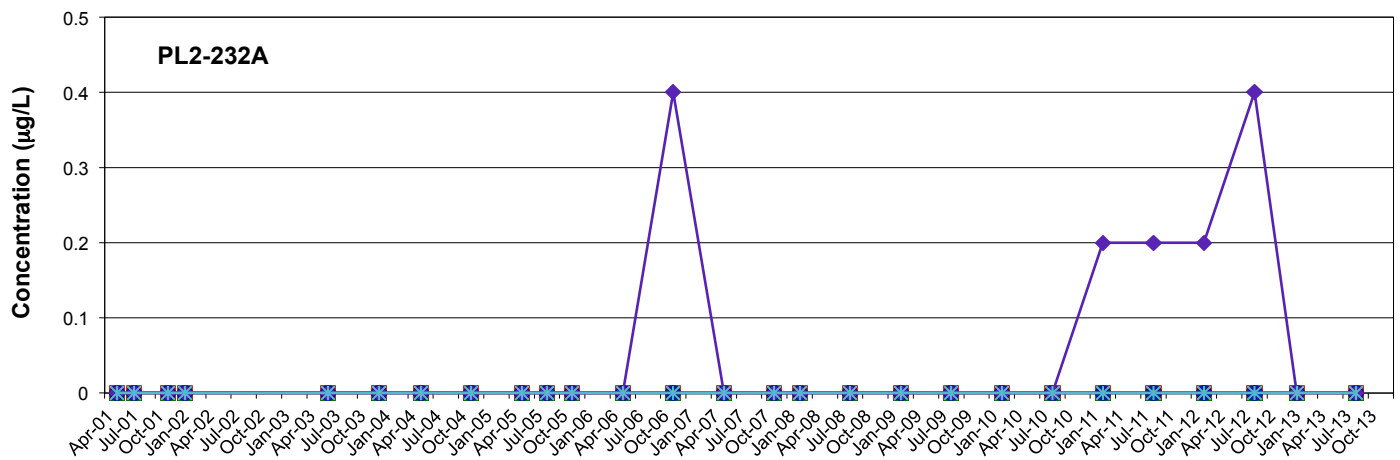


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**FIGURE 2-2e**  
**CHLORINATED VOC TRENDS AT**  
**PL2-214B, PL2-214C, AND PL2-227A**

Project	Boeing Plant 2		
Prepared For	The Boeing Company		
Location	7725 East Marginal Way Seattle/Tukwila, Washington		
	Drawn By DCK	Reviewed By DCK	Date 9/25/13



**Legend**

- cis-1,2-Dichloroethene
- ▲— trans-1,2-Dichloroethene
- Trichloroethene
- ◆— Vinyl Chloride
- \*— Tetrachloroethene

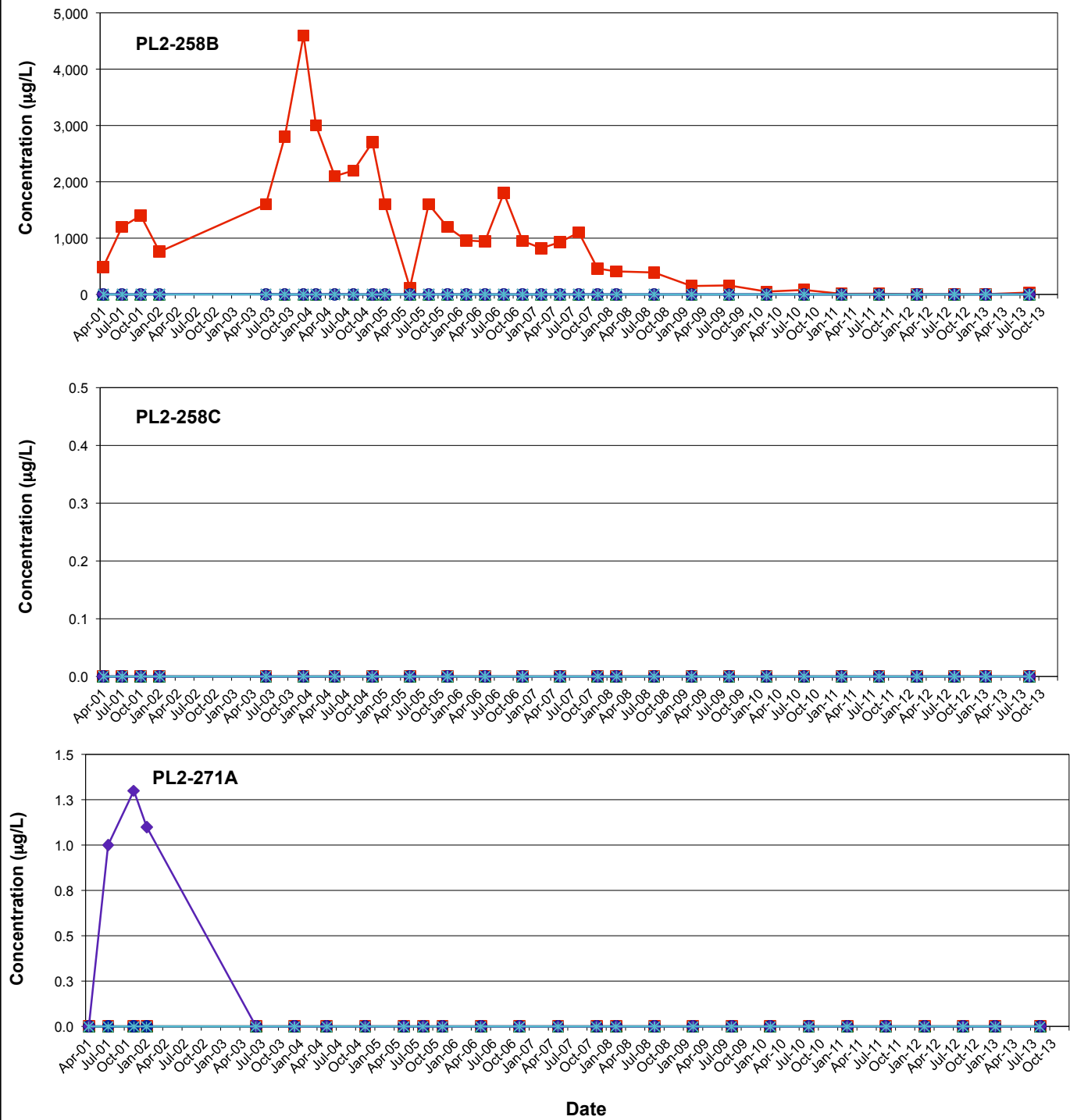



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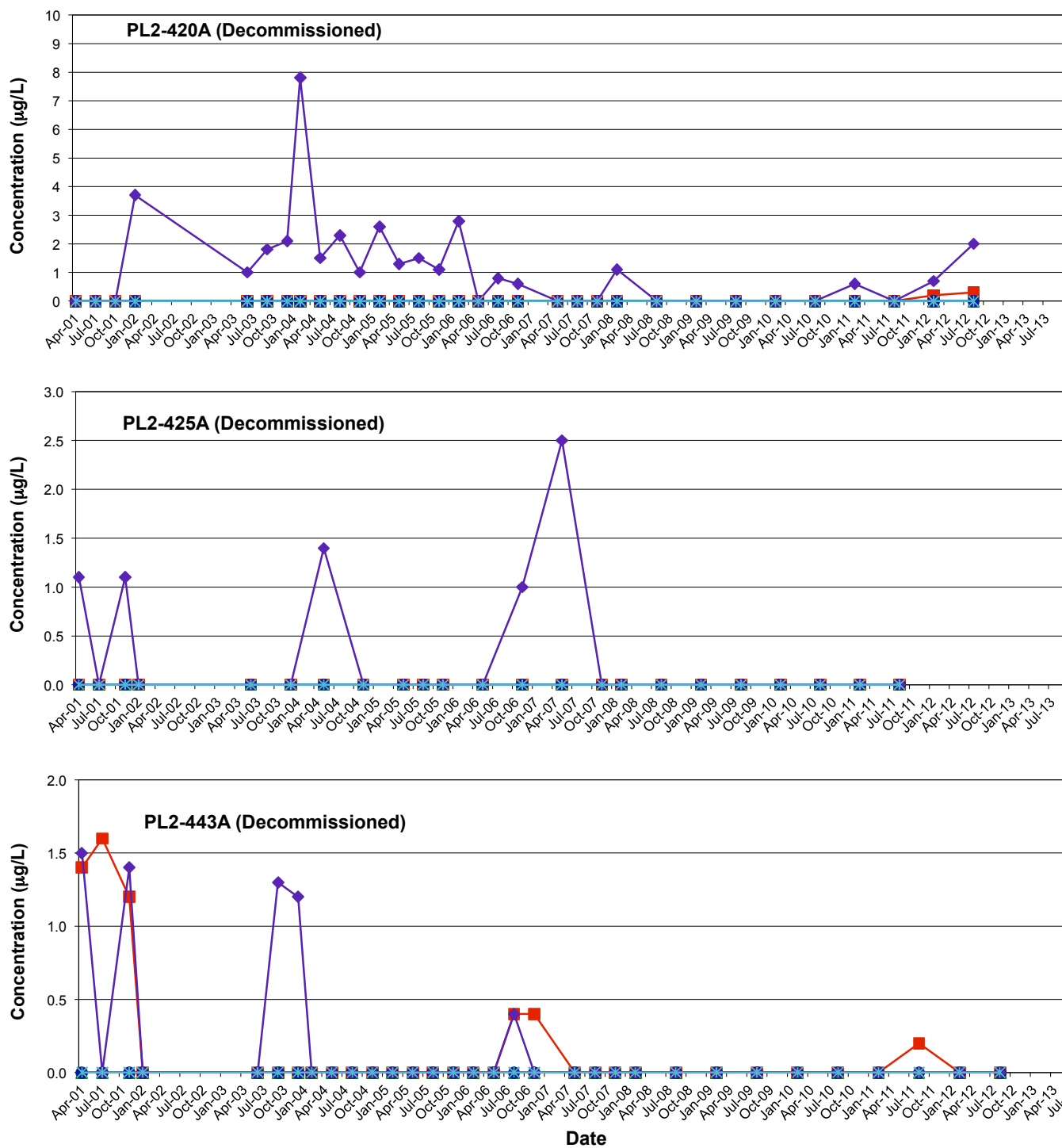
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Issaquah, Washington 98027

**FIGURE 2-2f**  
**CHLORINATED VOC TRENDS AT**  
**PL2-232A, PL2-233A, AND PL2-258A**

Project	Boeing Plant 2		
Prepared For	The Boeing Company		
Location	7725 East Marginal Way Seattle/Tukwila, Washington		
Drawn By	DCK	Reviewed By	DCK
		Date	9/25/13



<b>Legend</b> <div> <div></div> cis-1,2-Dichloroethene           <div></div> trans-1,2-Dichloroethene           <div></div> Trichloroethene           <div></div> Vinyl Chloride           <div></div> Tetrachloroethene         </div>	<div>  <b>ENVIRONMENTAL PARTNERS INC</b>            295 NE Gilman Boulevard, Suite 201            Issaquah, Washington 98027         </div>		<div>Project</div> Boeing Plant 2
--	--	--	-----------------------------------



#### Legend

- cis-1,2-Dichloroethene
- ▲ trans-1,2-Dichloroethene
- Trichloroethene
- ◆ Vinyl Chloride
- ✦ Tetrachloroethene

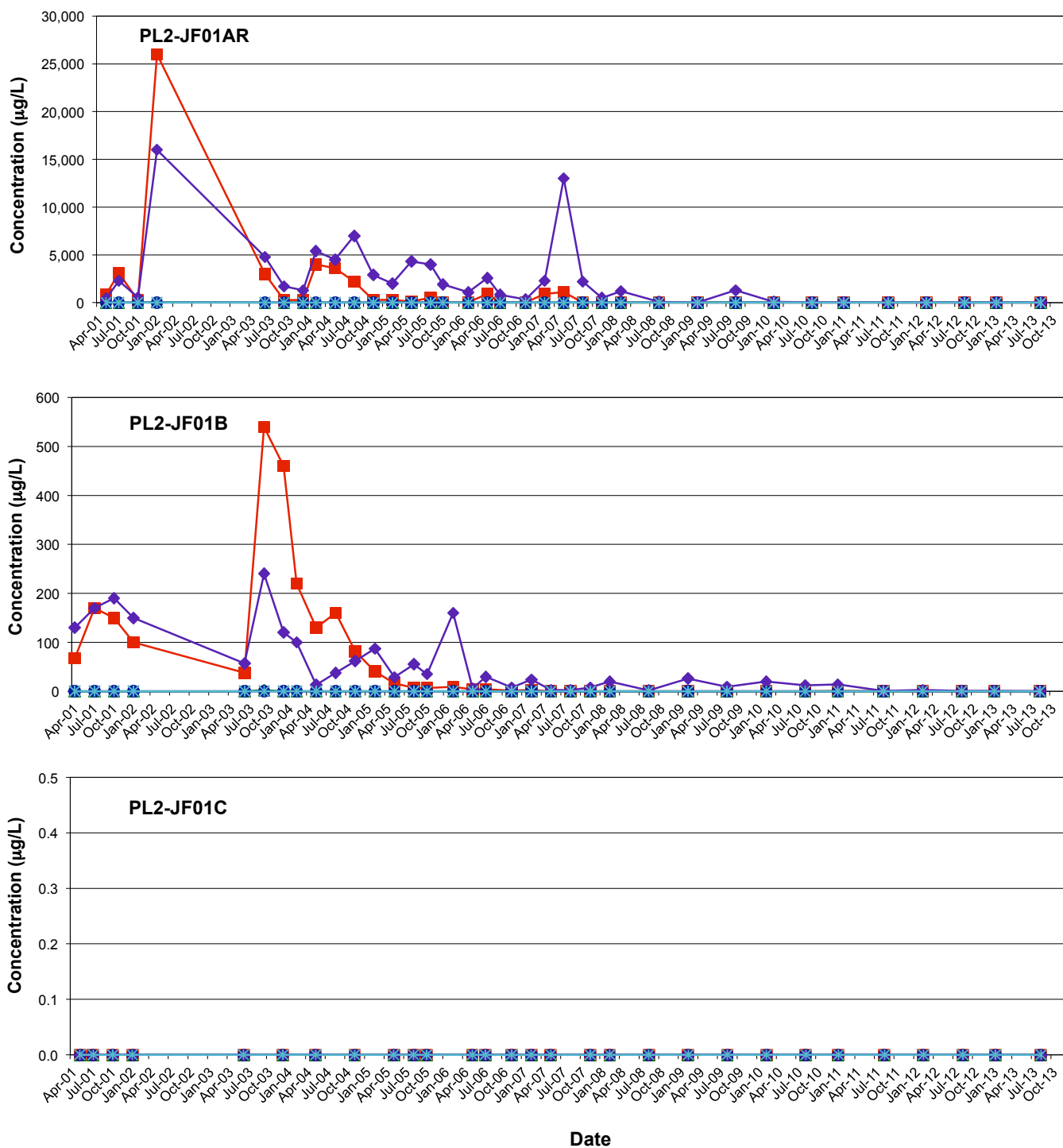


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**FIGURE 2-2h  
CHLORINATED VOC TRENDS AT  
PL2-420A, PL2-425A, AND PL2-443A**

Project	Boeing Plant 2		
Prepared For	The Boeing Company		
Location	7725 East Marginal Way Seattle/Tukwila, Washington		
	Drawn By DCK	Reviewed By DCK	Date 9/25/13



#### Legend

- cis-1,2-Dichloroethene
- trans-1,2-Dichloroethene
- Trichloroethene
- Vinyl Chloride
- Tetrachloroethene

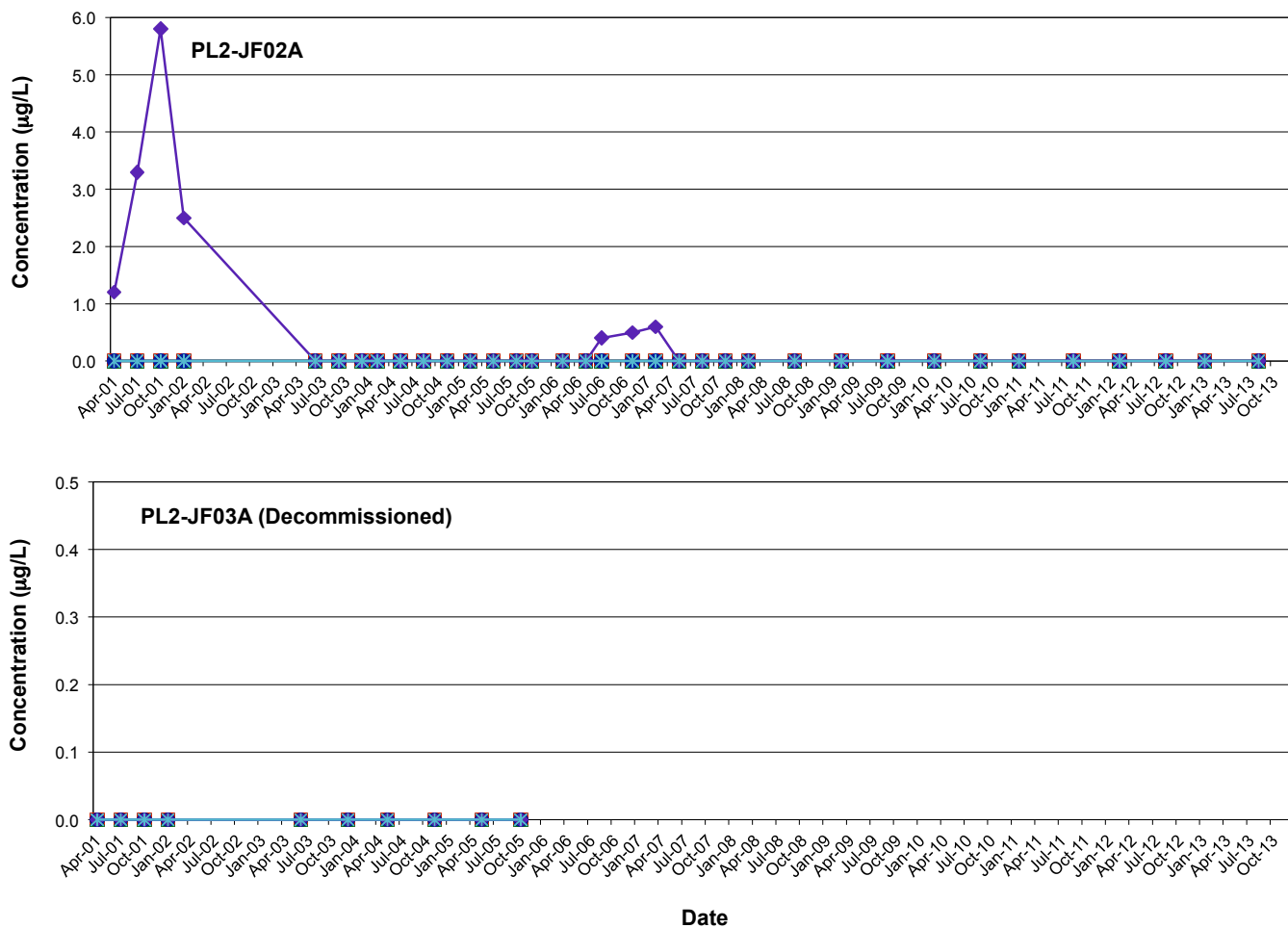


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**FIGURE 2-2i**  
**CHLORINATED VOC TRENDS AT**  
**PL2-JF01AR, PL2-JF01B, AND**  
**PL2-JF01C**

Project	Boeing Plant 2		
Prepared For	The Boeing Company		
Location	7725 East Marginal Way Seattle/Tukwila, Washington		
	Drawn By DCK	Reviewed By DCK	Date 9/25/13



#### Legend

- cis-1,2-Dichloroethene
- trans-1,2-Dichloroethene
- Trichloroethene
- Vinyl Chloride
- Tetrachloroethene

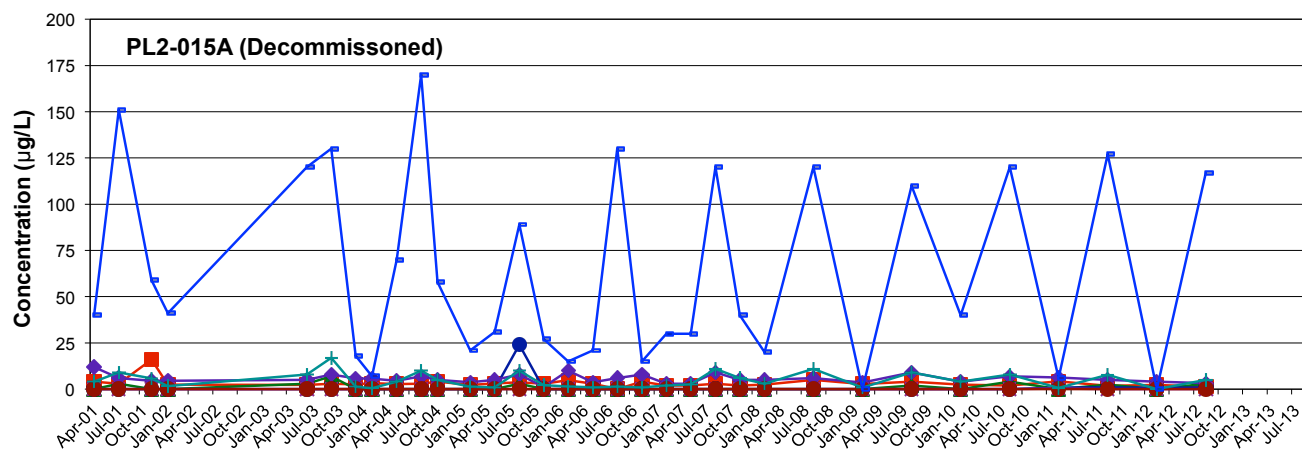
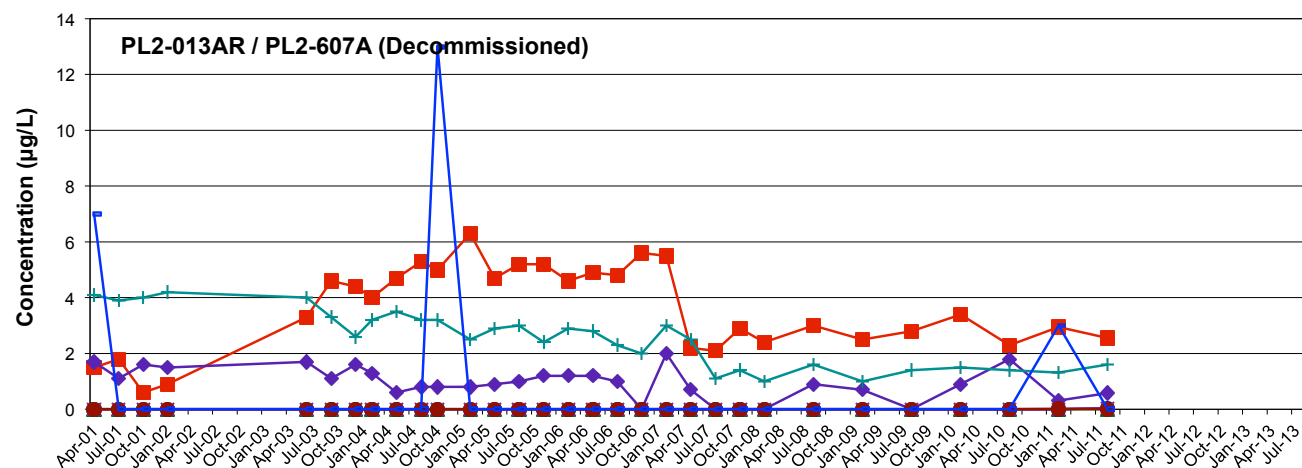
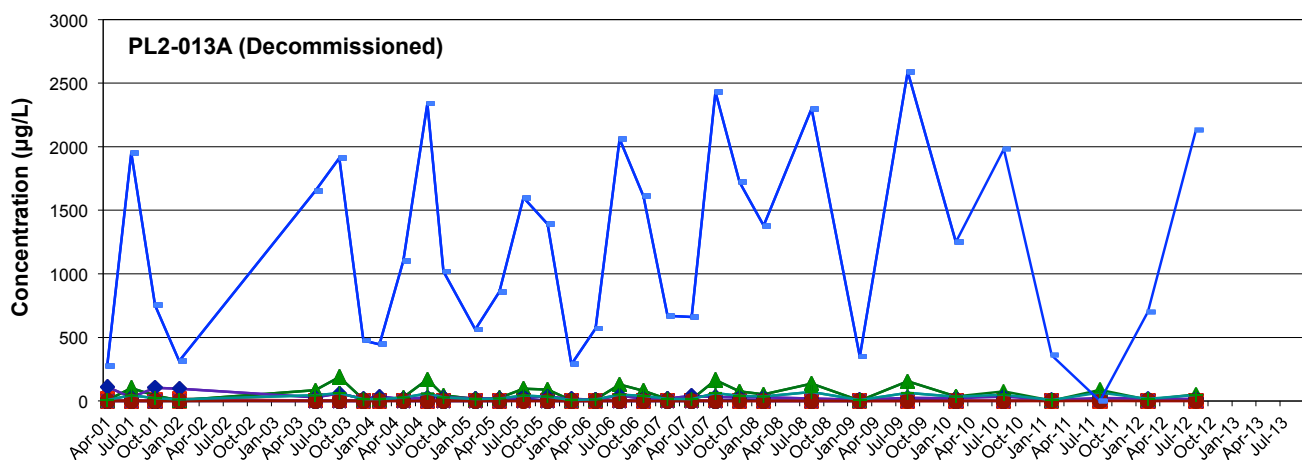


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**FIGURE 2-2j**  
**CHLORINATED VOC TRENDS AT**  
**PL2-JF02A AND PL2-JF03A**

Project	Boeing Plant 2		
Prepared For	The Boeing Company		
Location	7725 East Marginal Way Seattle/Tukwila, Washington		
	Drawn By DCK	Reviewed By DCK	Date 9/25/13



Date

**Legend**

- Arsenic
- Chromium
- \*— Lead
- +— Nickel
- ▲— Cadmium
- ◆— Copper
- Mercury
- Zinc

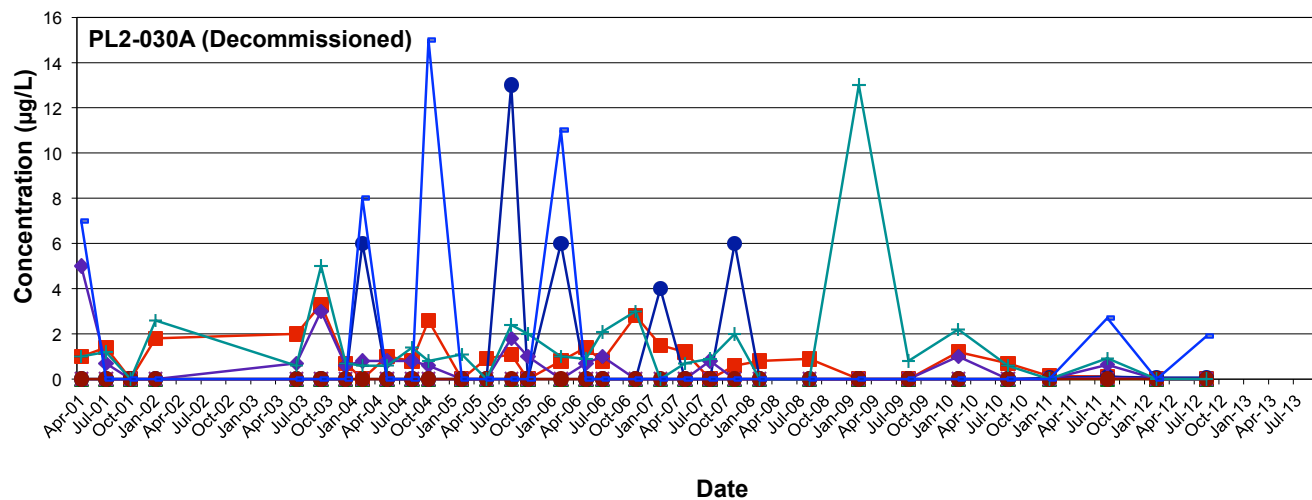
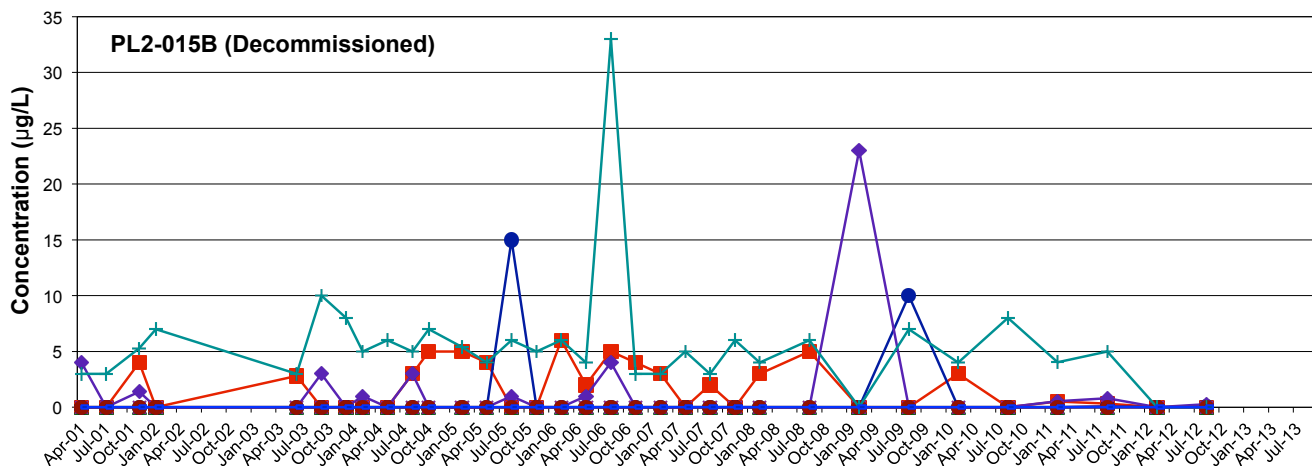
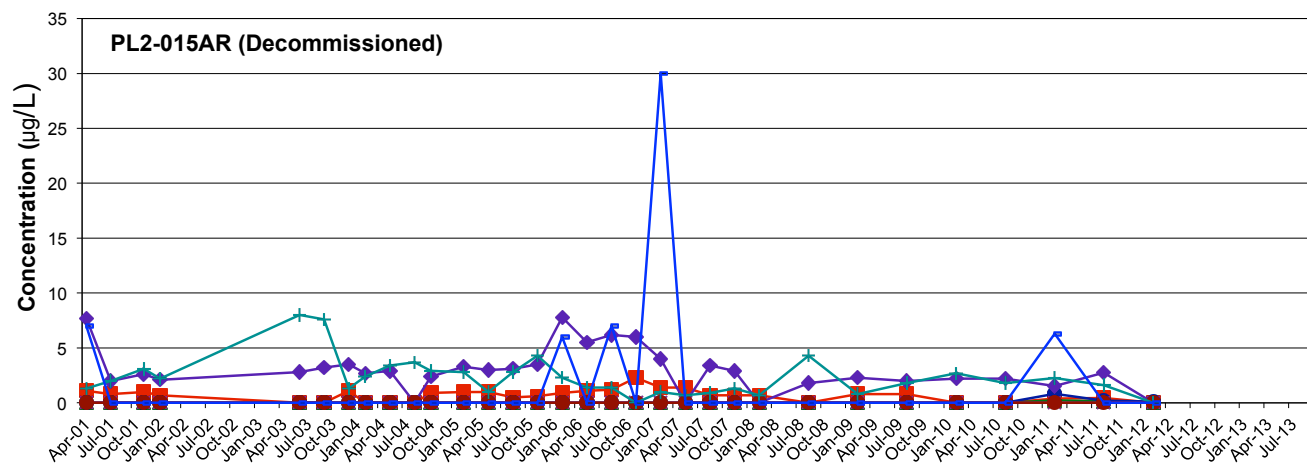


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Issaquah, Washington 98027

**FIGURE 2-5a**  
**DISSOLVED METALS TRENDS AT**  
**PL2-013A, PL2-013AR, AND PL2-015A**

Project	Boeing Plant 2		
Prepared For	The Boeing Company		
Location	7725 East Marginal Way Seattle/Tukwila, Washington		
Drawn By DCK	Reviewed By DCK	Date 9/25/13	



Date

**Legend**

- Arsenic
- ▲— Cadmium
- Chromium
- ◆— Copper
- \*— Lead
- Mercury
- +— Nickel
- \*— Zinc



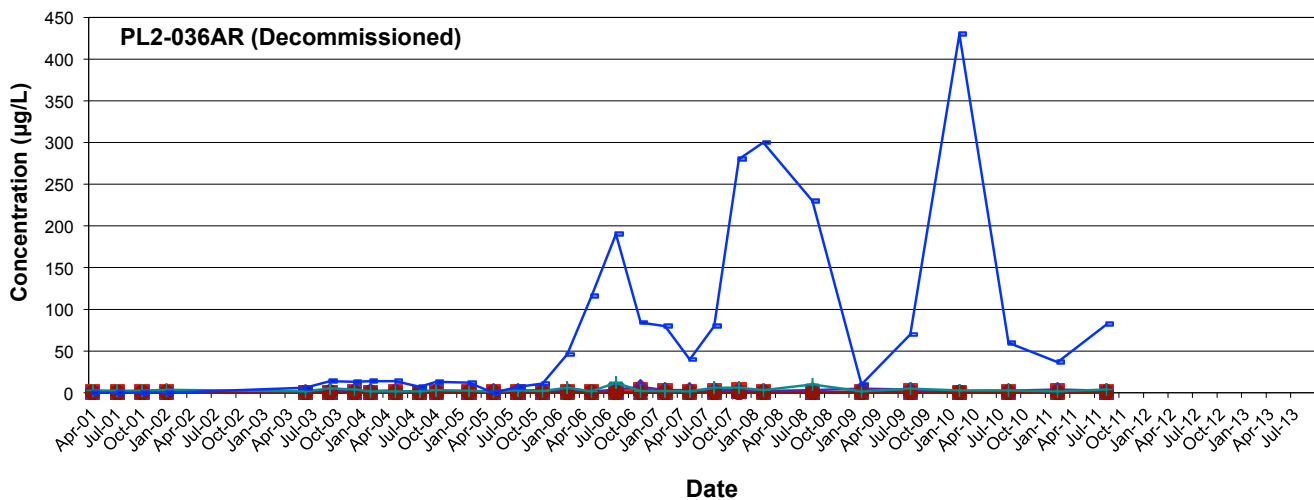
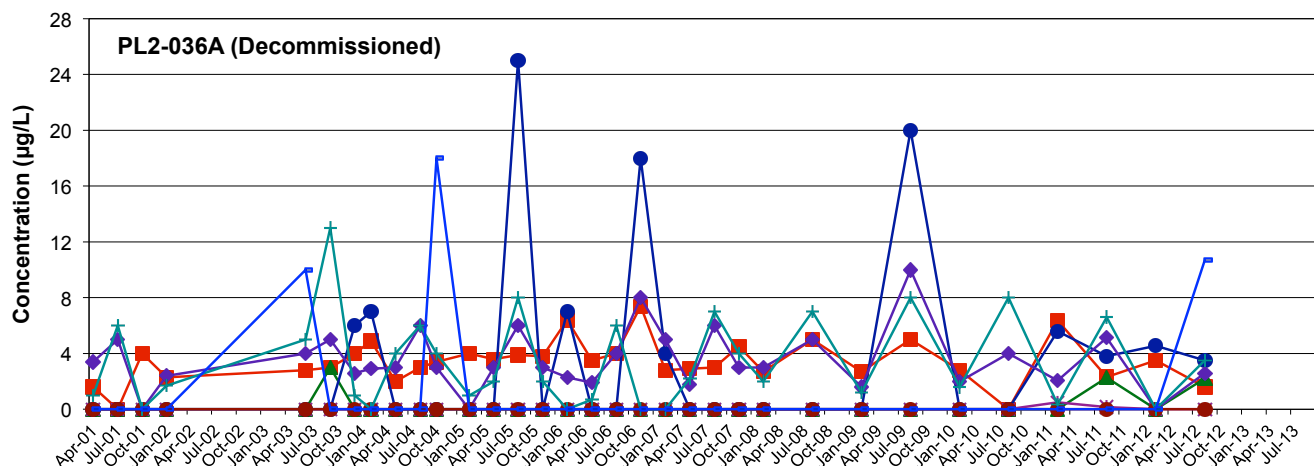
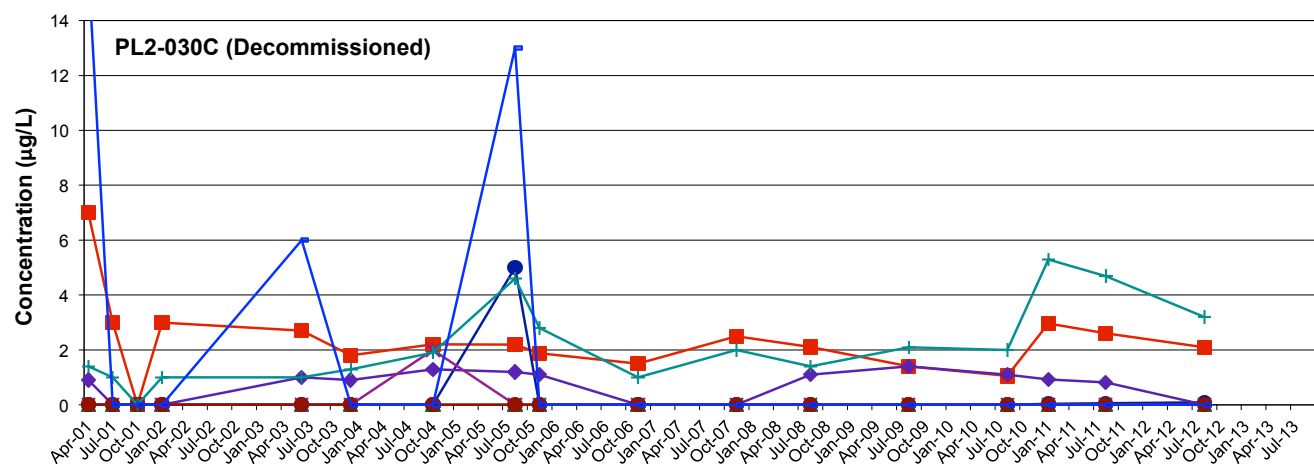
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Issaquah, Washington 98027

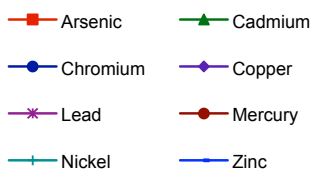
**FIGURE 2-5b  
DISSOLVED METALS TRENDS AT  
PL2-015AR, PL2-015B, AND PL2-030A**

Project	Boeing Plant 2		
Prepared For	The Boeing Company		
Location	7725 East Marginal Way Seattle/Tukwila, Washington		
Drawn By	DCK	Reviewed By	DCK
		Date	9/25/13





**Legend**

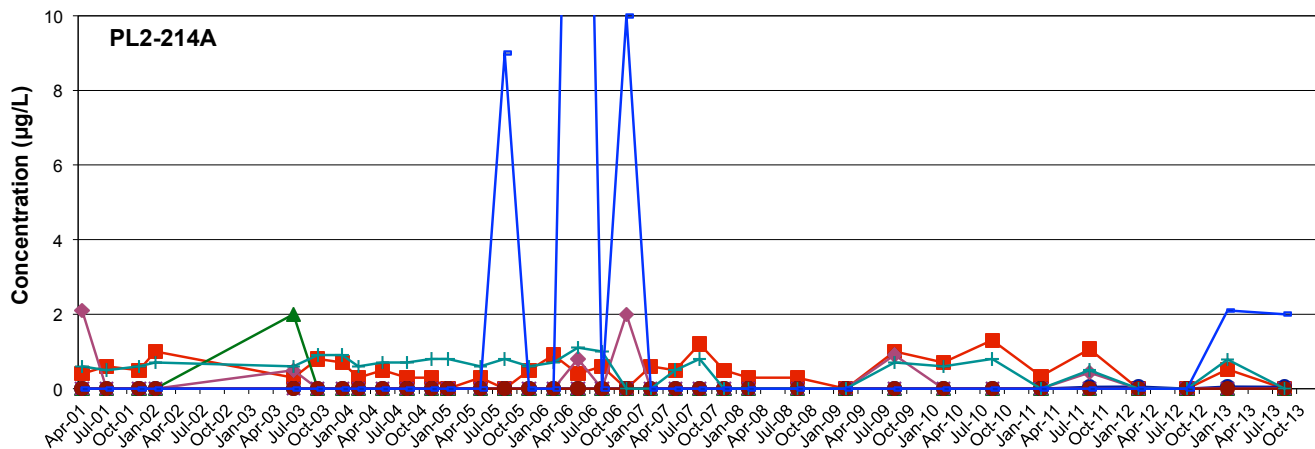
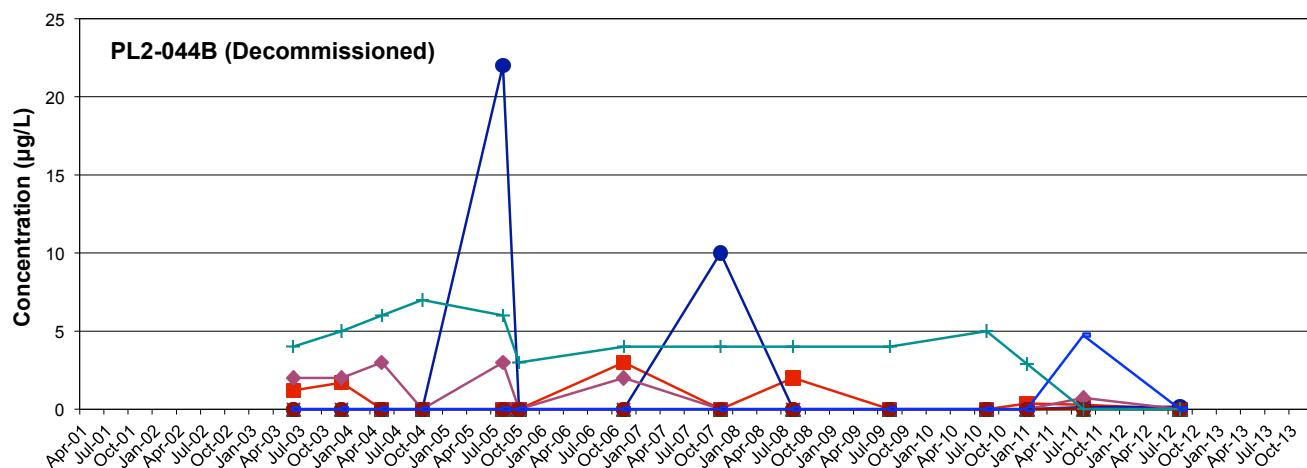
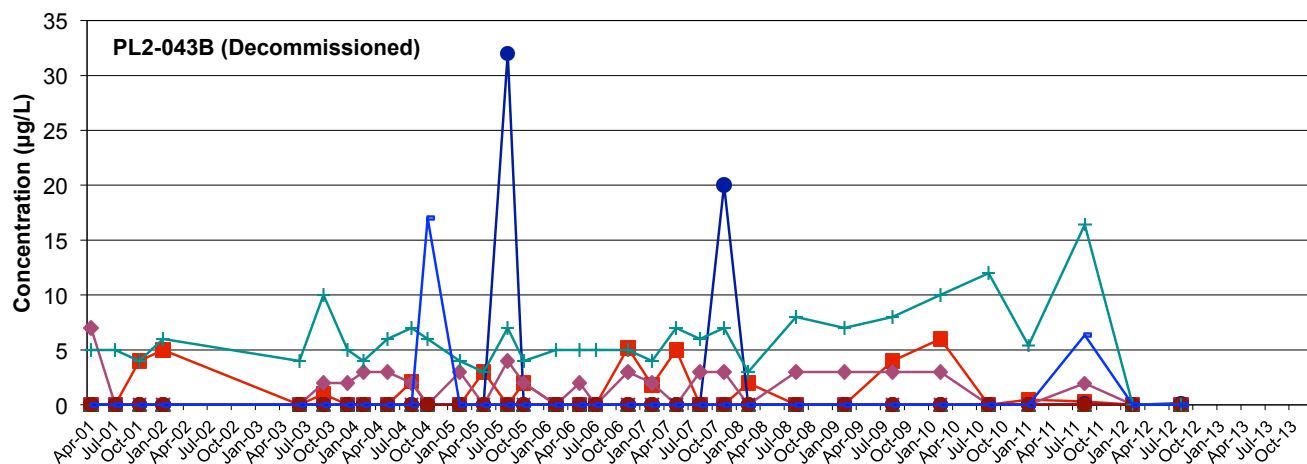


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Issaquah, Washington 98027

**FIGURE 2-5c**  
**DISSOLVED METAL TRENDS AT**  
**PL2-030C, PL2-036A, AND PL2-036AR**

Project	Boeing Plant 2		
Prepared For	The Boeing Company		
Location	7725 East Marginal Way Seattle/Tukwila, Washington		
Drawn By	DCK	Reviewed By	DCK
		Date	9/25/13



Date

**Legend**

- Arsenic
- ▲— Cadmium
- Chromium
- ◆— Copper
- \*— Lead
- Mercury
- +— Nickel
- +— Zinc

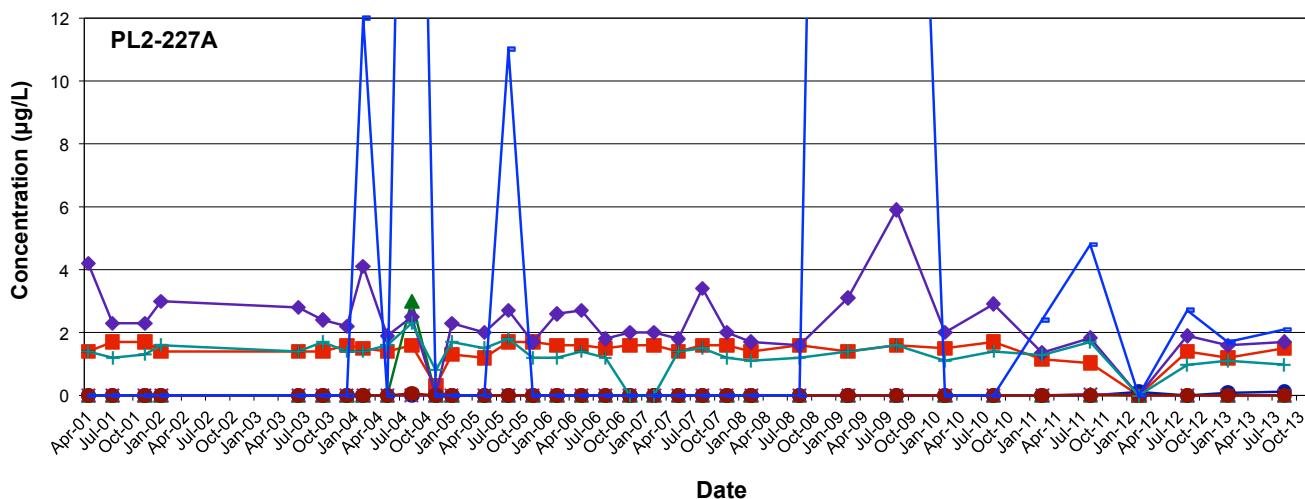
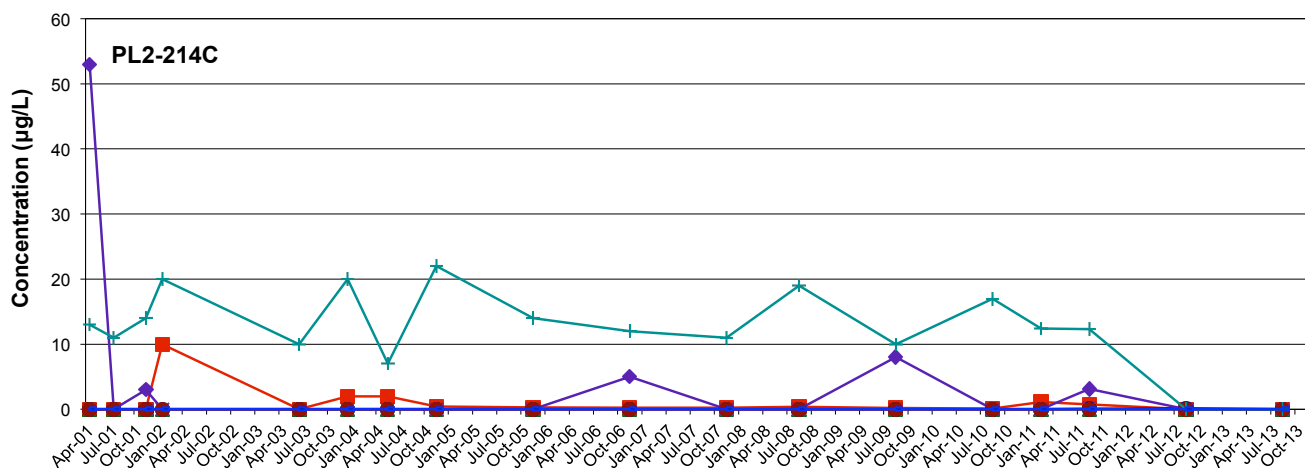
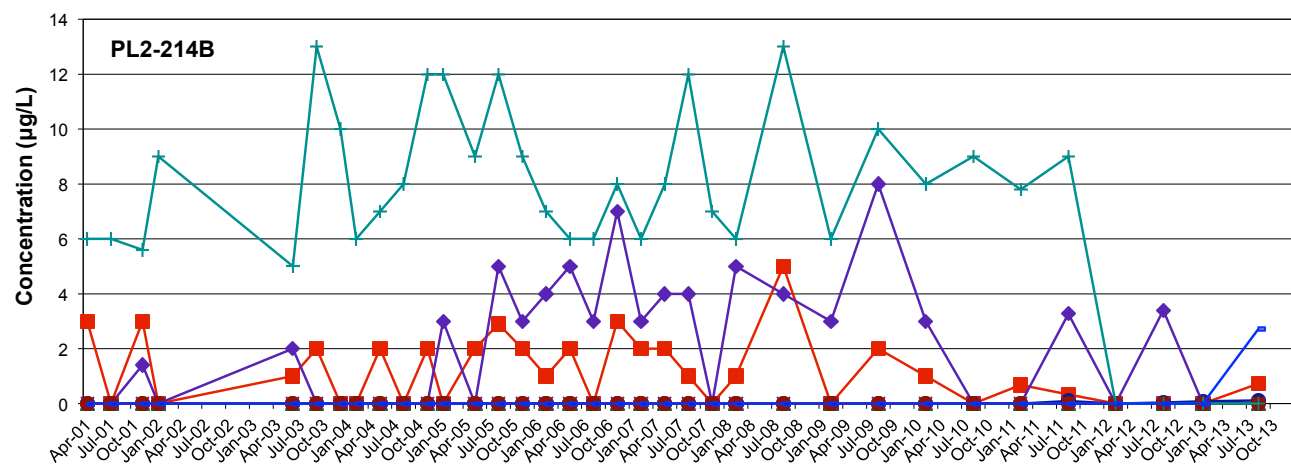


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Issaquah, Washington 98027

**FIGURE 2-5d  
DISSOLVED METALS TRENDS AT  
PL2-043B, PL2-044B, AND PL2-214A**

Project	Boeing Plant 2		
Prepared For	The Boeing Company		
Location	7725 East Marginal Way Seattle/Tukwila, Washington		
Drawn By DCK	Reviewed By DCK	Date 29/25/13	



**Legend**

- Arsenic
- ▲ Cadmium
- Chromium
- ◆ Copper
- × Lead
- Mercury
- + Nickel
- Zinc

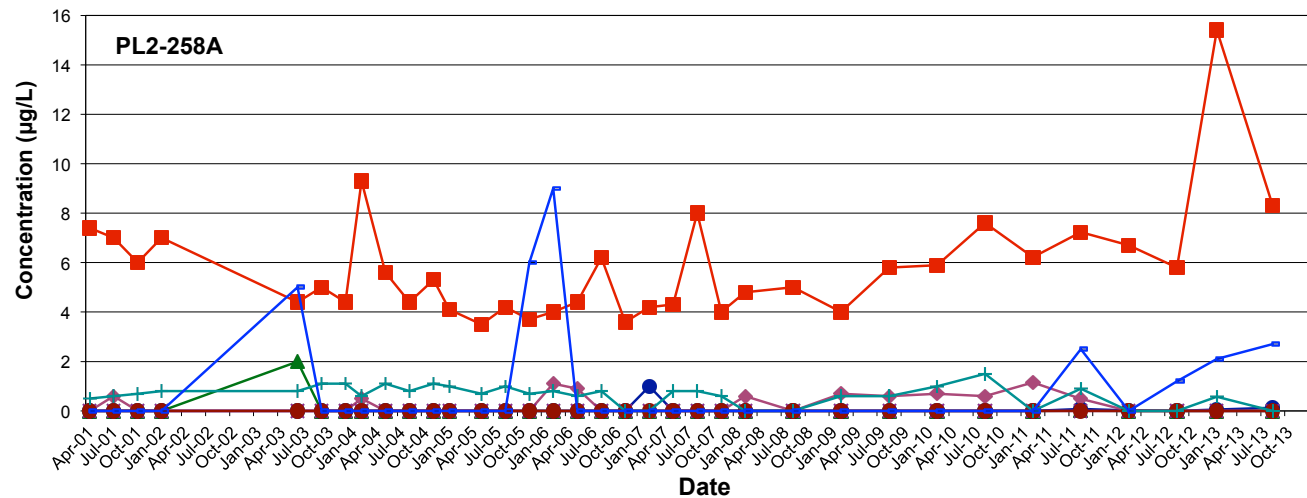
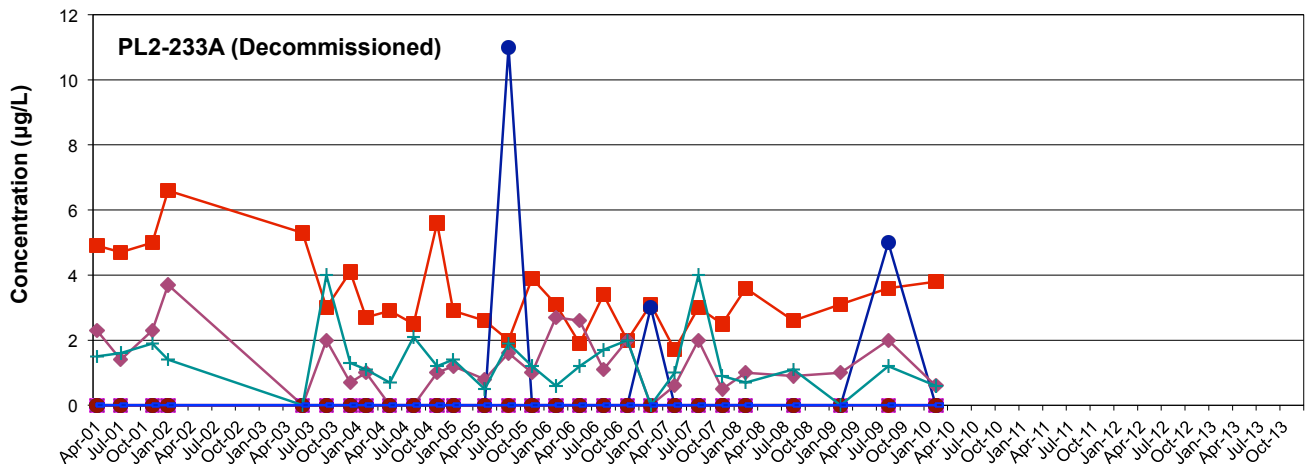
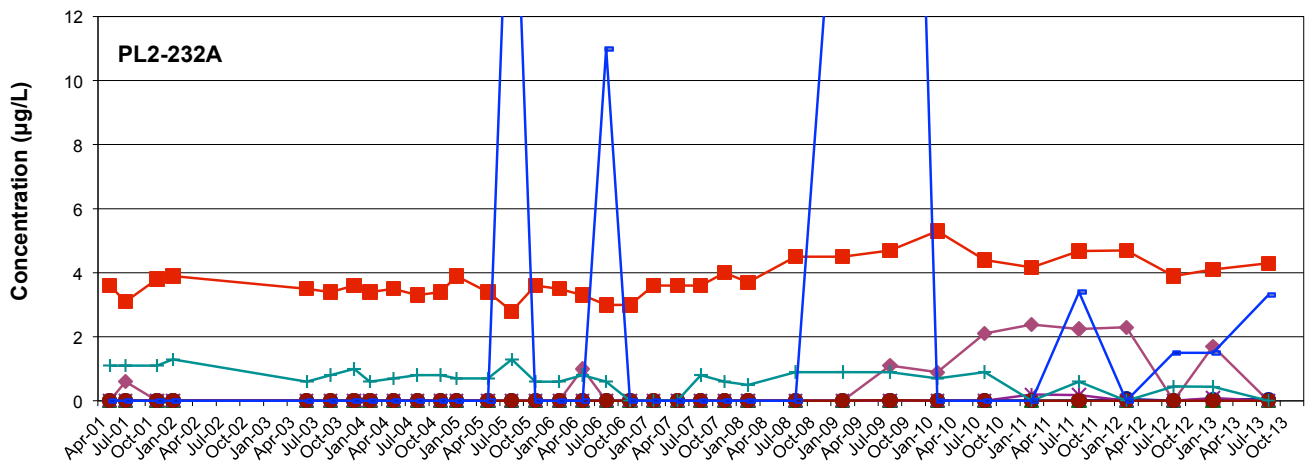


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Issaquah, Washington 98027

**FIGURE 2-5e**  
**DISSOLVED METALS TRENDS AT**  
**PL2-214B, PL2-214C, AND PL2-227A**

Project	Boeing Plant 2		
Prepared For	The Boeing Company		
Location	7725 East Marginal Way Seattle/Tukwila, Washington		
Drawn By	DCK	Reviewed By	DCK
		Date	9/25/13



**Legend**

- Arsenic
- Chromium
- \*— Lead
- +— Nickel
- ▲— Cadmium
- ◆— Copper
- Mercury
- Zinc

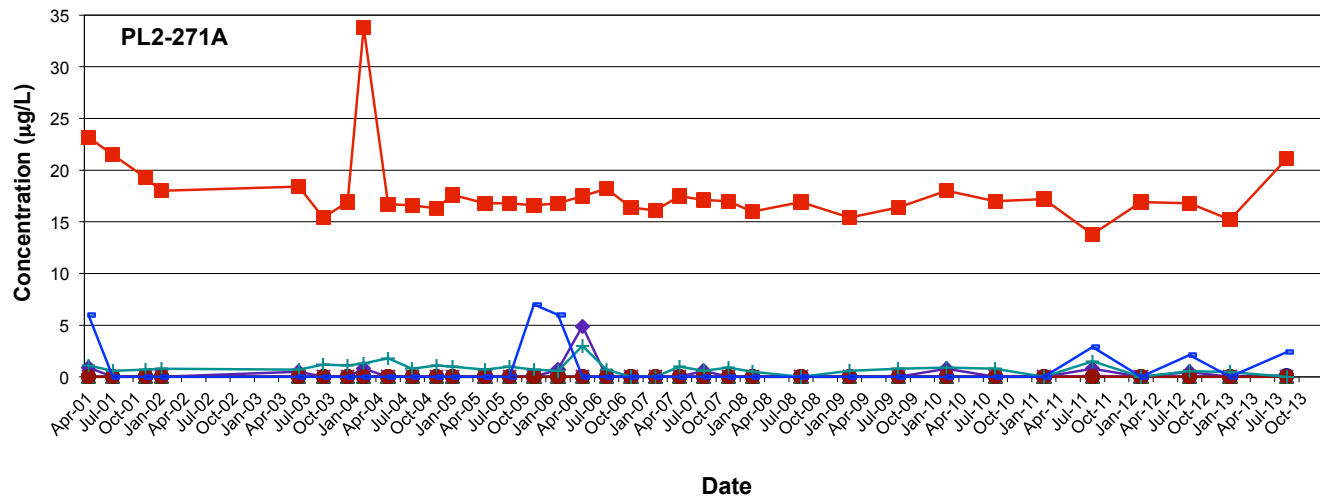
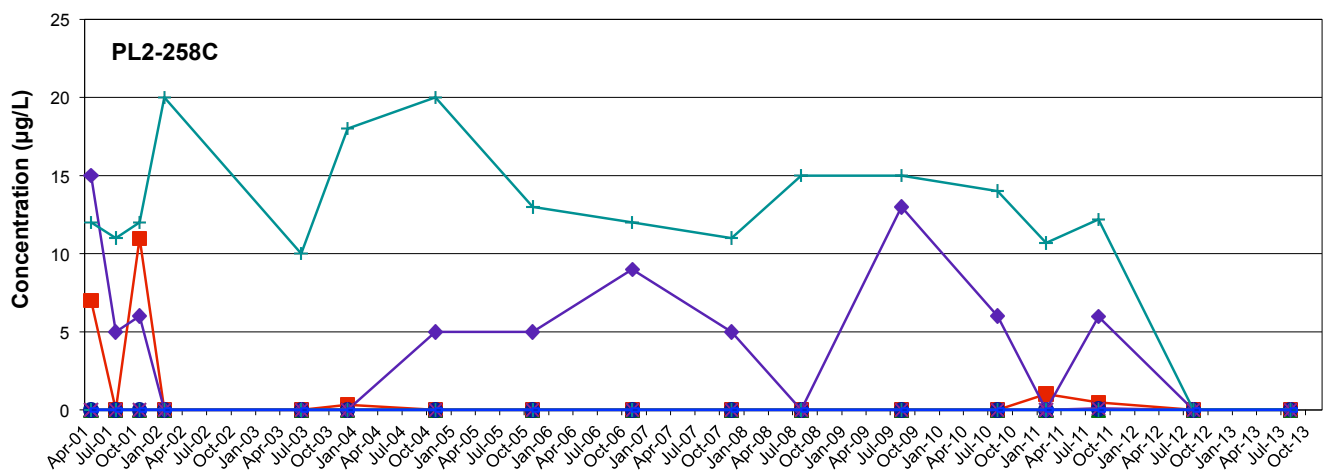
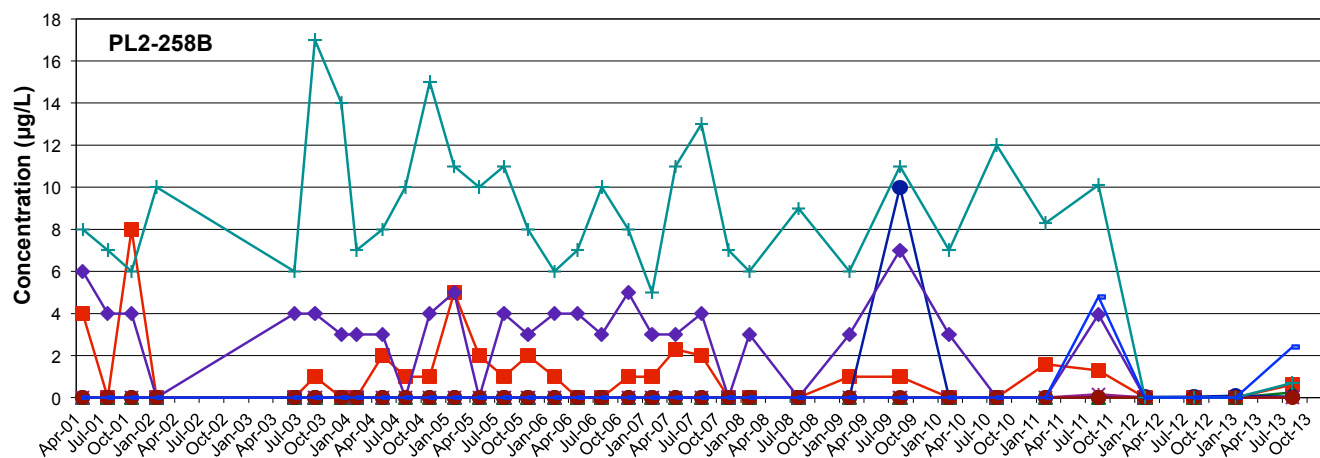


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Issaquah, Washington 98027

**FIGURE 2-5f  
DISSOLVED METALS TRENDS AT  
PL2-232A, PL2-233A, AND PL2-258A**

Project	Boeing Plant 2		
Prepared For	The Boeing Company		
Location	7725 East Marginal Way Seattle/Tukwila, Washington		
Drawn By	DCK	Reviewed By	DCK
		Date	9/25/13



**Legend**

- Arsenic
- Chromium
- \*— Lead
- +— Nickel
- ▲— Cadmium
- ◆— Copper
- Mercury
- Zinc

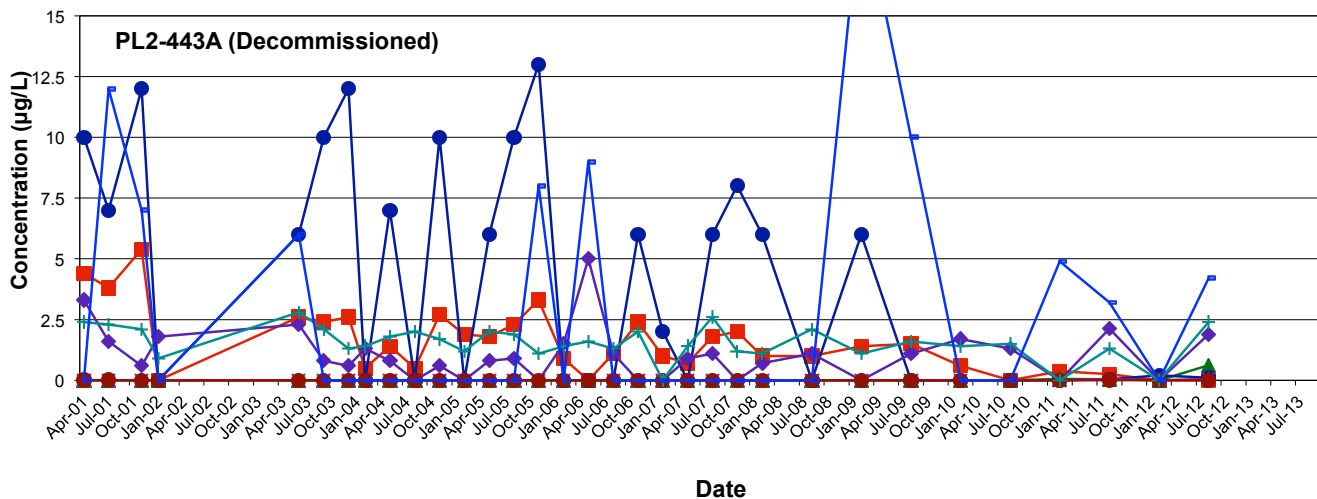
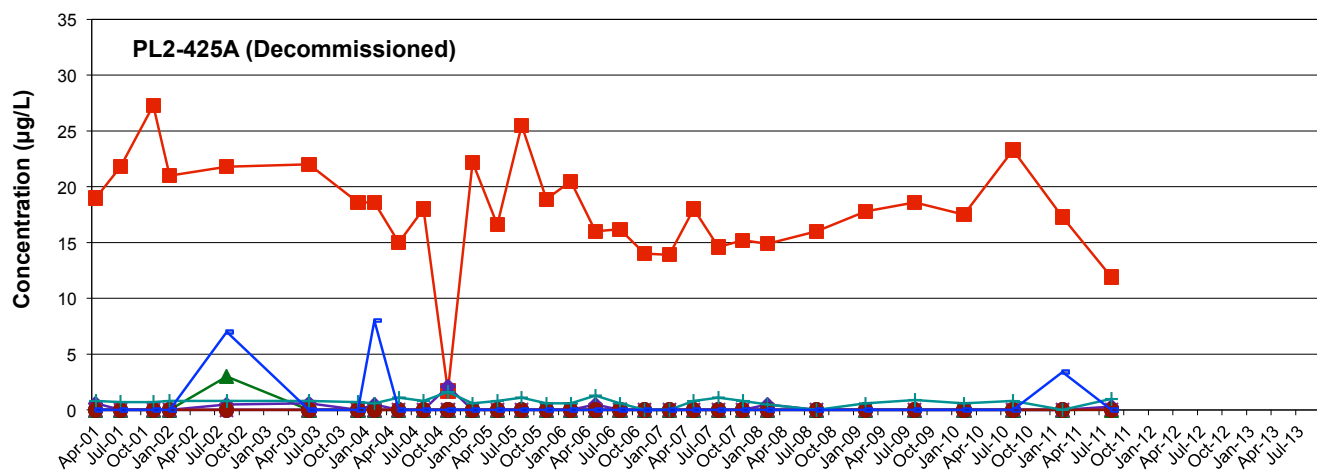
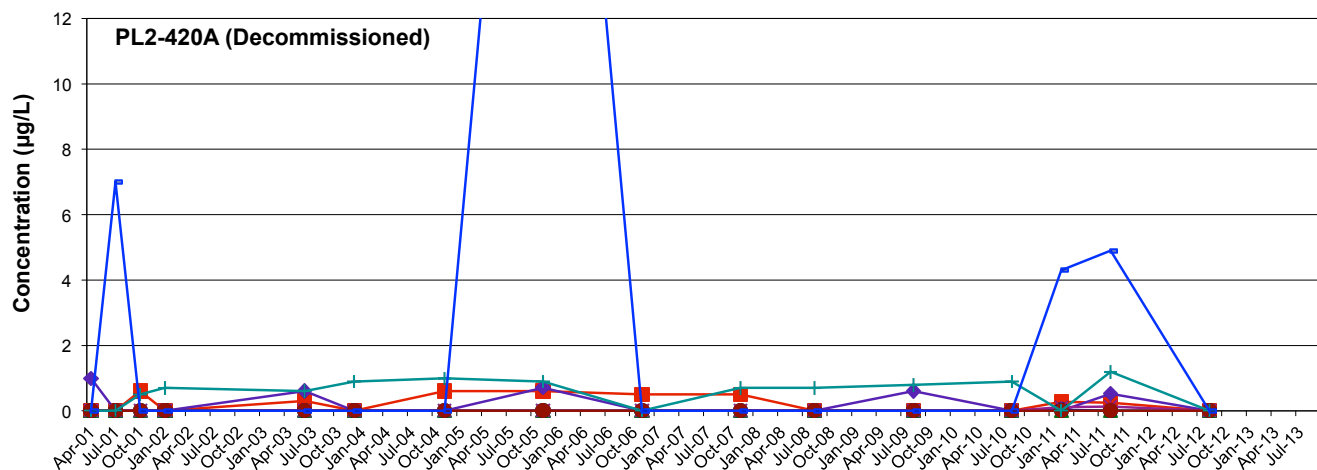


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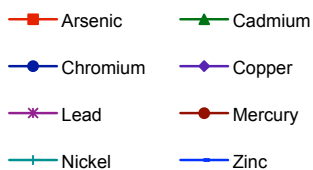
295 NE Gilman Boulevard, Suite 201  
Issaquah, Washington 98027

**FIGURE 2-5g**  
**DISSOLVED METALS TRENDS AT**  
**PL2-258B, PL2-258C, AND PL2-271A**

Project	Boeing Plant 2		
Prepared For	The Boeing Company		
Location	7725 East Marginal Way Seattle/Tukwila, Washington		
Drawn By	DCK	Reviewed By	DCK
		Date	9/25/13



**Legend**

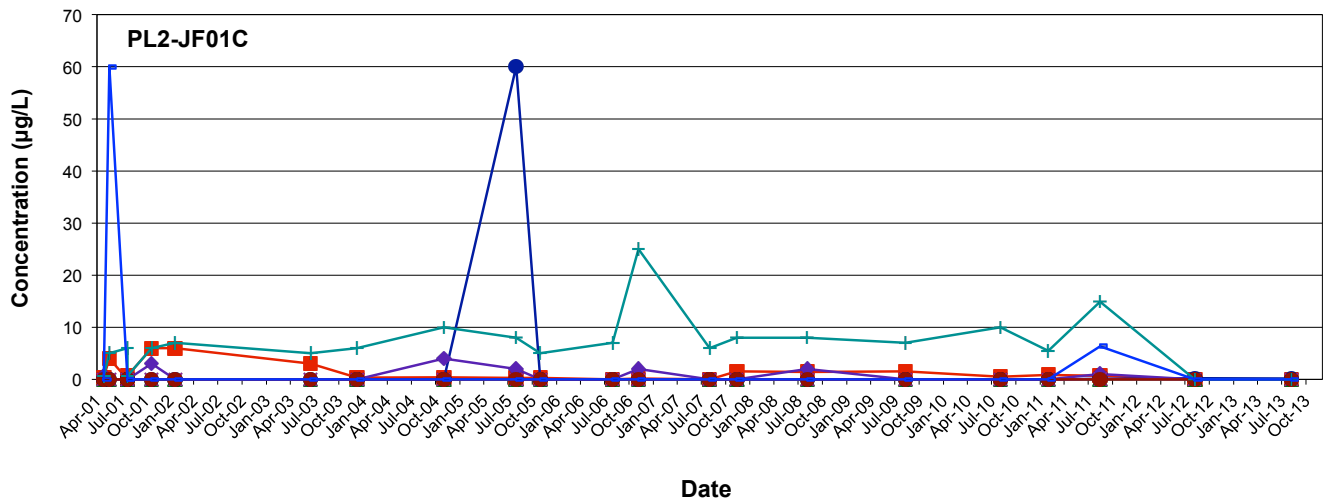
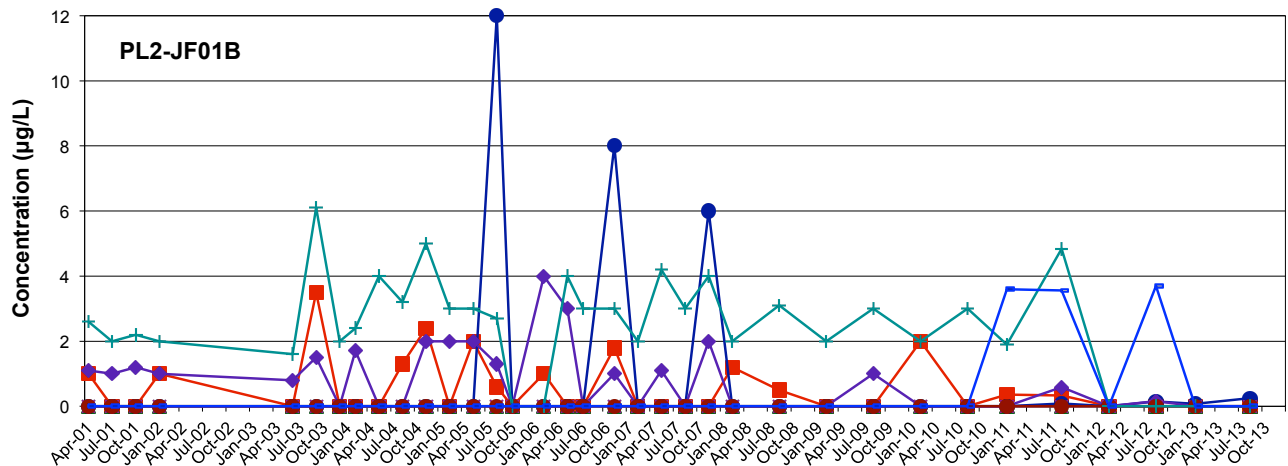
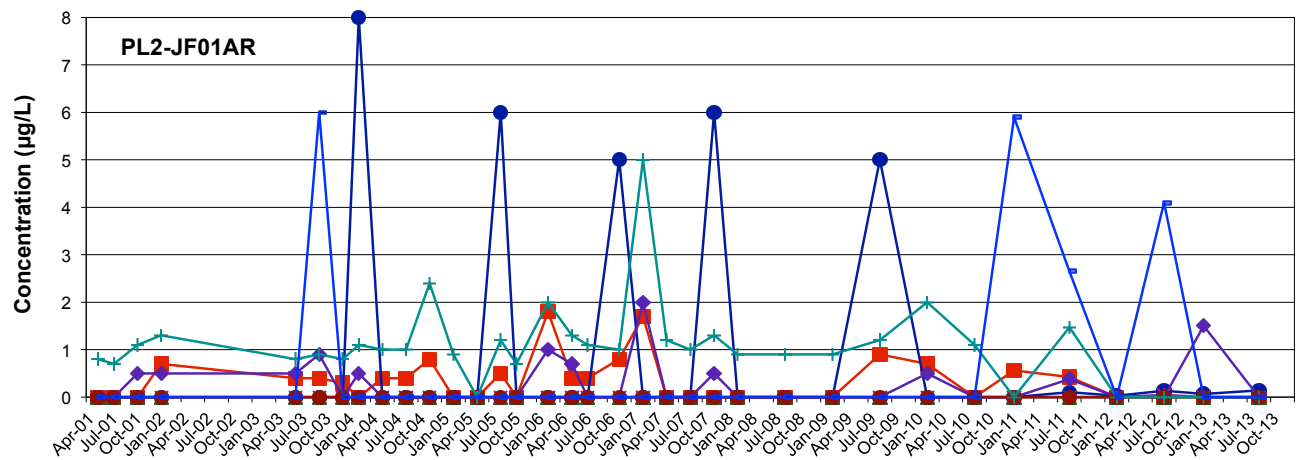


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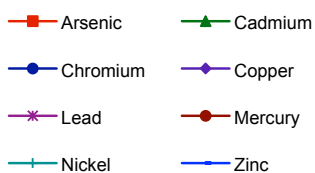
295 NE Gilman Boulevard, Suite 201  
Issaquah, Washington 98027

**FIGURE 2-5h  
DISSOLVED METALS TRENDS AT  
PL2-420A, PL2-425A, AND PL2-443A**

Project	Boeing Plant 2		
Prepared For	The Boeing Company		
Location	7725 East Marginal Way Seattle/Tukwila, Washington		
Drawn By	DCK	Reviewed By	DCK
		Date	9/25/13



**Legend**

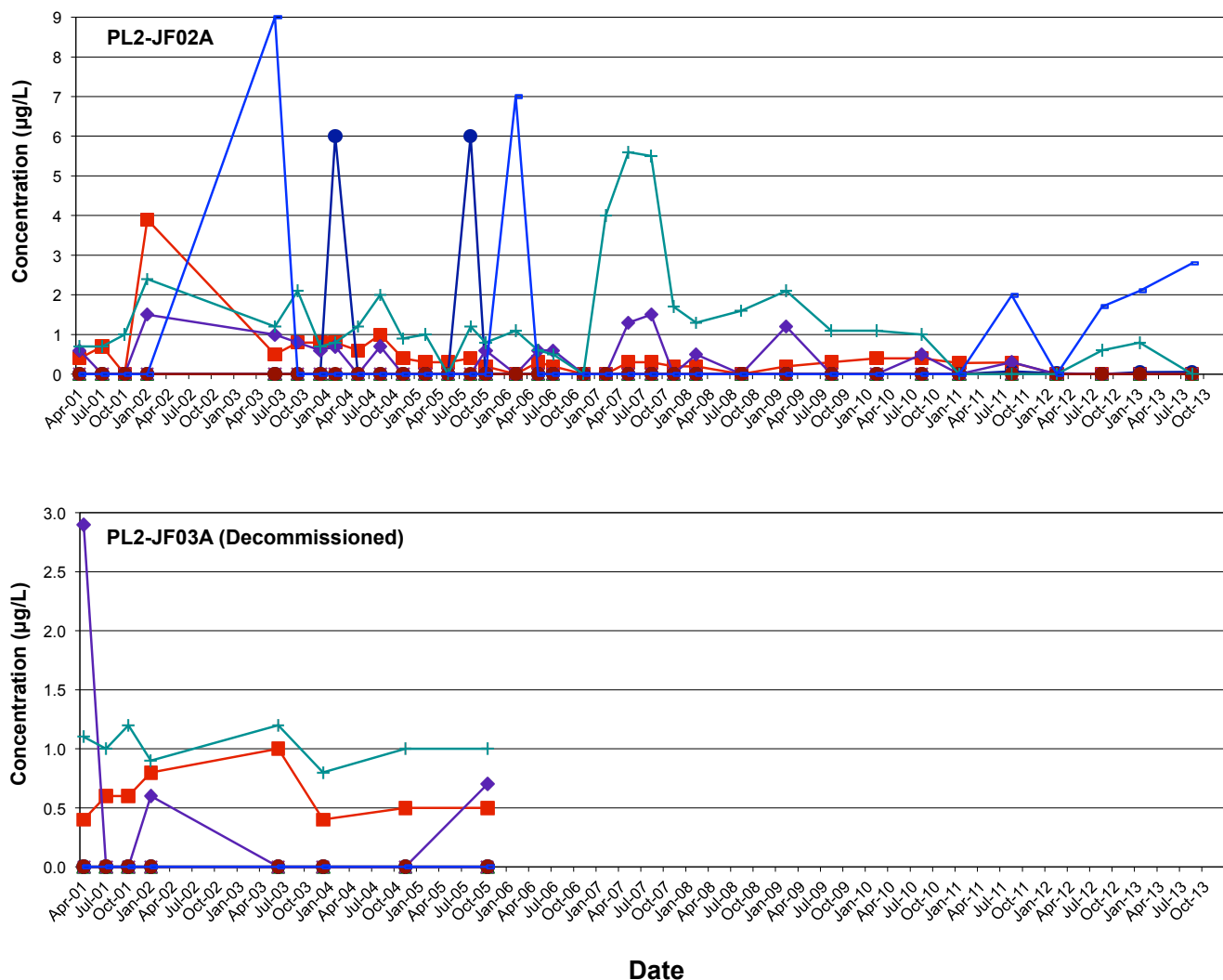


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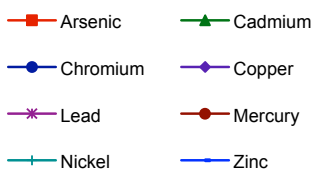
295 NE Gilman Boulevard, Suite 201  
Issaquah, Washington 98027

**FIGURE 2-5i  
DISSOLVED METALS TRENDS AT  
PL2-JF01AR, PL2-JF01B, AND  
PL2-JF01C**

Project	Boeing Plant 2		
Prepared For	The Boeing Company		
Location	7725 East Marginal Way Seattle/Tukwila, Washington		
	Drawn By DCK	Reviewed By DCK	Date 9/25/13



#### Legend



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Issaquah, Washington 98027

FIGURE 2--5j  
DISSOLVED METALS TRENDS AT  
PL2-JF02A AND PL2-JF03A

Project	Boeing Plant 2		
Prepared For	The Boeing Company		
Location	7725 East Marginal Way Seattle/Tukwila, Washington		
	Drawn By DCK	Reviewed By DCK	Date 9/25/13